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INTERORGANIZATIONAL RELATIONSHIPS IN THREE ALLIED HEALTH JOINT COOPERATIVE TRAINING PROGRAMS

by

Nelson John Nassau Kennedy

©

A THESIS

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ABSTRACT

The major purpose of the study was to investigate the linkage characteristics of three allied health programs in order to determine whether Andrews' (1978) propositions held true for joint cooperative programs other than the Respiratory Technology program of his study. In order to focus the study, three sub-problems were articulated which investigated the three programs using the concepts of formalization, intensity, reciprocity, integration and effectiveness.

A review of the related literature on joint cooperative programs, open systems theory and interorganizational relationships provided a conceptual structure which indicated that the degree of formalization, intensity and reciprocity of a joint cooperative relationship were important indicators of interorganizational linkage. The degree of integration and the measurement of program effectiveness was used as a basis for assessing the impact of these linkage dimensions on the three joint cooperative medical programs. No research hypothesis was developed because the study was exploratory.

The specific programs that were studied were:

1. The Registered Nursing Assistant Program at Alberta Vocational Centre (Edmonton),
2. The Medical X-ray Technology Program at the Northern Alberta Institute of Technology (Edmonton), and

3. The Health Records Technology Program at the Northern Alberta Institute of Technology (Edmonton).

Two instruments were used to gather perceptual data for this study: a 24 item two-part questionnaire and a structured interview guide. The 14 senior administrative personnel involved in each program in the educational institutions and the cooperating hospitals were interviewed in order to gather data on linkage dimensions. The questionnaire was used to gather data on program integration, and was administered to 63 faculty members and department heads, 59 of whom returned the questionnaire. The data on program effectiveness were compiled by preparing tables on the completion rates for the programs from information provided by the Registrar's offices at the Northern Alberta Institute of Technology and the Alberta Vocational Centre - Edmonton.

An analysis of the findings allowed the programs to be described and compared in terms of the linkage dimensions, degree of program integration, program effectiveness, and relationship between variables. The findings on these programs suggested the following conclusions:

1. The examination of the relationships that exist between the educational institutes and affiliating hospitals in a joint cooperation medical program are greatly facilitated by usage of the "linkage dimension approach."

2. None of the programs investigated had all of the individual characteristics required to support Andrews' (1978) five generalizations. Two of the three programs

studied had at least two characteristics each that did lend support to the generalizations. One program had no relationship consistent with any of the generalizations.

3. The findings suggest that the relationships of two of the three programs are consistent with Andrews' (1978) five generalizations, and therefore the five generalizations seem to hold true for some programs other than Respiratory Technology.

4. In general, it would appear that the R.N.A. program is highly formalized, and perceived as being effective and well integrated.

5. In general, it would appear that the Medical X-ray program is less formalized, perceived to be effective and, to a lesser degree than the R.N.A. program, well integrated.

6. In general, it would appear that the Health Records program is very informal, perceived to have a "fair" degree of effectiveness, and was perceived to be less well integrated than either of the other two programs.

7. The measurement of effectiveness used in this study did not yield any significant information in terms of predicting a specific linkage dimension profile.

The relationships between the variables investigated in each program and Andrews' five generalizations are tentative, and would benefit from continued research into joint cooperative medical programs.

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CHAPTER 1

THE PROBLEM

Introduction

The health care delivery system in Canada has seen an ever-increasing rise in the number of workers involved in the complex variety of professions within the system. The escalating number of workers has been a result of a variety of the changes in society, our environment, and the growth of technology within North American culture. Although in the early 1900's there were only 8,000 persons employed in the health care field in Canada, that number had risen to well over 275,000 by 1966. In 1970, Statistics Canada reported these figures had risen to over 300,000 and by 1983 over 650,000 Canadians were working in the health service industry (Canada Year Book, 1982:238).

In order to train these new health care professionals, a variety of educational programs has been developed. Many allied health education programs are college- or institute-based, with a clinical experience being provided by an affiliated hospital. Often these programs provide training to the student in separate and autonomous phases for different periods of time, culminating in at least one (or possibly two) diplomas being awarded. This type of program has developed from the need of diverse community service organizations to share resources offered by one another.

This need has evolved due to the inability of any one institution to offer the total theoretical and clinical training required by the health profession students. Thus, the student in an allied health program often begins training in a College or Institute of Technology, and completes the course requirements for the particular profession in an external clinical or hospital environment. Such programs are referred to as joint cooperative programs. The rubric "joint cooperative programs" is used by Andrews (1978) to describe a type of program that requires the resources of two or more autonomous organizations in order to provide the experiences necessary for the preparation of an allied health professional. Since education may not be the primary goal of all the institutions involved in a joint cooperative program, the logic is compelling that there are different fundamental goals and requirements of each of the institutions involved in the cooperative relationship. How might the complexity of these relationships and the linkage variables established between the institutions be explained in terms of the open systems perspective?

Purpose of the Study

Andrews (1978) noted that post-secondary institutions are complex organizations that require many resources, which results in interdependent relationships being established with other organizations. The post-secondary institutions offer programs for allied health professionals, and it is these programs (because of the requirement for clinical experiences for the allied health student) that necessitate the establishment of inter-organizational relationships with other complex institutions, particularly hospitals. These programs are joint co-operative programs, and the central problems in Andrews' study had questioned (a) the existence of relationships between linkages, degree of integration, and program effectiveness and (b) the extent of the association between these linkage dimensions in four joint co-operative programs. The allied health profession Andrews investigated was Respiratory Technology, and included two programs in Alberta and two in Ontario. His study provided descriptions of the inter-organizational linkages of these programs, an investigation of the integration and effectiveness of each of the programs, and an exploration of the relationship between forms of linkage, degree of integration and program effectiveness. From his study, Andrews postulated five generalizations related to joint co-operative programs. The five generalizations are:

1. If a joint cooperative program is characterized by a high relative resource commitment, and the resource commitment is symmetrical, then the cooperative program is likely to be characterized by high formalization and definitional reciprocity.
2. If one organization engaged in a joint cooperative program has a high relative resource commitment, then the cooperative program is likely to be

characterized by high formalization and structural standardization (coordination).

3. If a joint cooperative program demonstrates an asymmetrical relative resource commitment, then the cooperative program is also likely to demonstrate low definitional reciprocity.
4. If a joint cooperative program is characterized by a symmetrical relative resource commitment, and the resource exchange is low, then the cooperative program is likely to be characterized by low formalization and structural standardization (coordination).
5. If a joint cooperative program is characterized by a high degree of agreement formalization, then the cooperative program is likely to be characterized by high structural and procedural standardization.

It is the purpose of this study to test the five generalizations posited by Andrews to see if they hold true for allied health programs other than Respiratory Technology.

Problem Statement

The major problem of this study was to investigate the linkage variables of three allied health programs in order to determine whether Andrews' (1978) propositions hold true for joint cooperative programs other than those in his study. Three programs different from those examined by Andrews were chosen for this investigation. They are:

1) the Registered Nursing Assistant Program at Alberta Vocational Centre (Edmonton)
2) the Medical X-ray Technology Program at the Northern Alberta Institute of Technology (Edmonton)
3) the Health Records Technology Program at the Northern Alberta Institute of Technology (Edmonton)

To focus the study, three sub-problems were articulated:

(1) For each of the three joint cooperative programs to be investigated, what is the nature of the cooperation using the following variables: formalization, intensity, reciprocity, integration and effectiveness?
(2) What relationships exist between the linkage variables noted above?
(3) Are these relationships consistent with Andrews' five generalizations regarding linkage dimensions for allied health joint cooperative programs?

Significance of Study

Considerable interest has been shown in the conceptual framework developed by Andrews (1978) including work done by Ratsoy, Babcock and Caldwell (1978), Ratsoy (1979) and Mutema (1981). However, no study has specifically tested the generalizations hypothesized by Andrews as they relate to health science programs other than Respiratory Technology.

Included in the significance is the potential for change in the programs under study in that they might adjust their linkages in light of the findings. As well, there is the knowledge that there are many such joint cooperative programs not included in the study which may benefit from the generalizations of this research.

Explanation of Terms

For the purpose of this study, many of the following definitions have been adapted or taken directly from Andrews (1978).

1. Allied Health Programs--are those programs in which students are prepared in both theoretical and clinical abilities in the expertise of patient care so that they may function in a diagnostic and treatment role under a physician's orders.
2. Joint Cooperative Programs--are those programs which have at least two distinct phases of training of the student; these phases are provided to the student in separate and autonomous institutions for different periods of time, culminating in at least one diploma (and possibly two) being awarded.
3. Linkage dimensions--"refers to relational properties or characteristics of the connection between the parties involved in the joint cooperative program" (Andrews, 1978:7).

4. Formalization--"refers to the degree to which the interorganizational relationship, necessitated by a joint cooperative program, is given official sanction by the parties involved" (Andrews, 1978:8).
5. Intensity--refers to the involvement (as measured by the relative resource commitment and frequence of interaction required by organizations to perpetuate the relationship (modified from Marratt, 1971:91).
6. Reciprocity--refers to "the extent of the mutual exchange and agreements within an organization" (modified from Andrews, 1978).
7. Integration--refers to "a perceived state of collaboration between major pairs of sub-units" (Lawrence and Lorsch, 1969:13).
8. Effectiveness--refers to the subjective implications of frequency and quality, and objective measurement of completion rates.
9. Program Head or College Coordinator--refers to personnel employed primarily for coordinating and supervising the college or institutional portion of the program.
10. College instructor or faculty--refers to full-time instructional personnel employed primarily for the purpose of providing classroom and laboratory instruction in the college or institutional portion of the program.
11. Hospital instructor or practicum coordinator--refers to the full-time instructional personnel employed primarily for the purpose of providing instruction and coordination

of the hospital learning experience to students in the clinical or hospital portion of the program.

12. Department Head--refers to personnel employed full-time in coordinating and supervising the operations of the department within the clinical agency where the students are trained.

Delimitations

The delimitations of this study included the following:

(a) Only the three joint cooperative programs identified in the problem statement were examined.

(b) Only the educational institutions and the "major" clinical agencies in Edmonton were involved. These clinical agencies included only hospitals that provide general health care and do not specialize in any single facet of medical cases. These hospitals included the following four Edmonton hospitals: the Royal Alexandra Hospital, the Edmonton General Hospital, the Misericordia Hospital, and the University of Alberta Hospital.

(c) Only the perceptions of the faculty and senior administrators were included in this study.

(d) The study included only the relational aspects that existed in the 1982-83 academic year.

Limitations

The limitations of the study included those normally associated with the interview and survey method, i.e., recording and gathering accurate data through the use of perceptions of the respondents. An individual provided his perceptions of reality based on his specific orientation; hence, distortion is possible.

Methodology

The interview guide and survey questionnaire (1978) designed by Andrews were modified for use in this study. The interview guide was designed to gather factual information about the structure of the program, as well as perceptions of linkage dimensions. The questionnaire was designed to record the perceptions of program integration. Modification was necessary because all of the original instruments were designed for use specifically for the Respiratory Technology programs included in that study.

The senior administrative personnel and the instructors for each of the three allied health programs were included in the study. The administrators were both interviewed and asked to complete the survey questionnaire, while the instructors were surveyed only. In each of the institutions, appropriate arrangements were made with the administration before commencement of the research projects.

Analysis of the data was accomplished following the pattern established by Andrews (1978). The interview data were treated by making a synopsis of the respondents comments, then the information was analyzed in order that the personal and demographic variables provided by the respondents could be presented in cross-referenced tabular form. Included in the data analysis was the information provided by the integration questionnaire, which was submitted to comparative analysis using the "F-test" and the "Scheffé" multiple comparison of means test. The examination of differences in perceived integration between programs was accomplished by using this statistical approach.

Organization of the Thesis

This chapter has presented an overview of the study. Chapter 2 reviews the conceptual basis for the study, as derived from the literature. Chapter 3 is concerned with the design of the research for this thesis, and the methodology used in this particular study, including the method of data collection and analysis. Chapter 4 presents the findings of the research, including a description of each of the joint cooperative programs, and the data on the three sub-problems for the three programs. Chapter 5 examines the differences in linkage dimensions, degree of integration, and program effectiveness in each of the three joint cooperative programs included in this study. The final chapter presents a summary of the results of the data analysis and finishes with a discussion of the conclusions, recommendations, and implications derived from this study.

CHAPTER 2

REVIEW OF RELATED LITERATURE

In Chapter 1 it was noted that little research-based knowledge is available on this particular research topic, although there is a quantity of information available on the study of organizations from the open systems perspective, and various writers have examined the theoretical issues involving interorganizational relationships.

This study is a case study involving three health education programs; these programs incorporate post-secondary institutions and participating health care agencies (hospitals).

The nature of this study indicated a need to provide a review of the literature related to the open systems approach to interorganizational relationships, and to elaborate on the concept of using interorganizational variables for analysis of these relationships.

This chapter is composed of three sections that reflect the literature related to this study. The first section is a discussion of the joint cooperative medical programming relevant to this study. The second section is a review of the literature on organizations as open systems. The final section is a review of current concepts regarding interorganizational relationships. Together these three sections provide the conceptual basis for the study.

Joint Cooperative Medical Programs

Human service organizations have been defined by Hasenfeld and English (1974:1) as "the set of organizations whose primary function is to define or alter the person's behavior, attitudes, or social status in order to maintain or balance his well being." These human service organizations are becoming more complex because of the increasing need to share the diminishing pool of available resources.

The post-secondary educational institute is one example of human service organizations that are dependent on such interorganizational arrangements. Andrews (1978:6) states that "such institutions have to deal with more external agencies than before, vie for clients (students) and to continue to operate despite a number of external constraints." The allied health programs within the post-secondary institutions are one type of programming that requires these organizations to develop interorganizationally dependent relationships in the form of the joint cooperative medical programs.

Each of the programs included in this study can be categorized as a joint cooperative medical program. Andrews (1978:7) defined joint cooperative programs as:

> those programs which have two distinct phases of training, each under the auspices of a functionally autonomous organization. The first year of training is conducted at a college or institute of technology, and the second year at a hospital. Both phases of the program are intended to complement each other, and, therefore, a high degree of coordination is required.

These allied health programs are all situated within (and operate within) organizations which may or may not have the education of students as a primary goal. The college or educational institute certainly has the student as the primary consideration, but the hospital or clinical environment has the treatment and overall care of the patient as its ultimate goal.

The interaction between the medical training institutions and teaching hospitals is "indisputable and inseparable" (Mutema 1981:19). The education of the students in the medical joint cooperative programs requires the interphasing of two distinct aspects of their training--a school-based theoretical phase and a hospital-based clinical phase. The teaching hospital provides essential ingredients to the educational institution's programs--medical clinics, medical and allied health personnel, and above all, access to patient care. Derzon (1978:19) commented on the teaching hospital as an integral part of medical education:

> The modern teaching hospital has become the necessary vehicle for much of the medical school's essential activity. Further, the teaching hospital has become the relief valve for the most cherished of all academic commodities, space, in an era of program growth unaccompanied by capital dollars. The affiliating hospital, often with more flexible funding, is a tempting mistress.

Normally, because few medical training programs have their own hospitals, the medical training programs depend significantly on teaching hospitals for students' clinical practice. Blishen (1969:22-44), in his review of medical education in Canada, noted that the teaching hospital is an integral element in a medical teaching program, but no medical school or university owns and operates its own teaching hospital. The predominate system is for the medical training programs to enter into contractual agreements with accredited teaching hospitals for use of their facilities.

Derzon (1978:20) noted that this 'marriage' of medical schools with teaching hospitals had emerged for several reasons:

> 1. There are inherent interdependencies. It is, by and large a natural partnership of consenting adults. And for the schools, the only adults in town are the community hospitals.
> 2. There is usually sufficient commonality of goals of the two organizations.
> 3. There may be economic advantages to both organizations.
> 4. There is a traditional but important conviction of the hospital that optimal quality care can be achieved only through educational affiliation.
> 5. There is a desire for prestige and service role expansion.
> 6. There is fear that, left alone, the potential partner will become a threatening competitor.

Derzon (1978) argued that the success of these marriage relationships depended on the "degree of community hospital commitment and the flexibility and humility that the school can bring to the partnership."

Blishen (1969) provided further insight into some of the difficulties that can arise in the relationships between the teaching institutions and the affiliating hospitals. He pointed out the seemingly divergent goals of the two organizations that could lead to interorganizational conflict; the medical faculty is primarily concerned with education and research, while the teaching hospital is responsible for patient care and service to the community. Further difficulties may arise in the association between medical schools and teaching hospitals in the supervision of students during their clinical training. The teaching institutions may require their staff to be responsible for the clinical practicum of their students in the hospital; this proposal may not be acceptable to the clinical agency. Other possibilities of conflicts may arise in the use of hospital facilities and clinical experiences received by the students.

Derzon (1978:20) argued that these potential problems between the members of the joint cooperative programs may be reduced if the organizations acknowledge the following concepts:

1. The fortunes of the school and the hospital are completely interlocked and interdependent. One cannot succeed if the other fails. One cannot be great if the other is only good.

2. There must be recognition that the teaching hospital is first a hospital and secondly but not secondarily, a hospital for teaching. The teaching hospital is first and foremost a delicately balanced enterprise trying to improve the health of the patients for whom it has accepted responsibility.

3. There must be competent bilateral leadership that plays a reinforcing role for the two organizations.

The purpose of this section was to examine the available literature on the subject of post-secondary institutions as human service organizations. Following this, the relationship between the post-secondary institutions, allied health programs, and joint cooperate programming was presented. The problems that arise because of the inter-organizational dependencies between medical schools and hospitals were also addressed, including identification of concepts that are useful in reducing these problems. The next section will examine the organization as an open system.

The Organization as an Open System

The traditional approaches to the study of organizations offered the basic doctrine that organizations were groupings of rationally coordinated parts where, through labor division and an authority hierarchy, the activities of the organization were oriented towards an explicit purpose.

Various authors including Hall (1983), Schein (1970), and Katz and Kahn (1978), suggested that this viewpoint failed to recognize the complex nature of the organization. The traditional approach did not consider the pressures and constraints generated by forces both internal and external to the organization. It was necessary to develop an approach that acknowledged these internal dynamics as well as the external force as powerful influences on the organization.

Schein (1970:104-116) offered the open systems perspective which appeared to address the dynamic nature of the organization. In his model, Schein (1970) examined the organization in constant interaction with the external environment through the importation, conversion, and exportation of energy. These processes are referred to as input, throughput and output, and Katz and Kahn (1978:20) stated:

> Social organizations are flagrantly open systems in that the input of energies and conversion of output into further energic input consist of transactions between the organization and its environment.

From this, the effect of the external environment on the organization was recognized as a basic tenent of the open systems concept. The impact of other organizations external to a focal organization was recognized by numerous writers, including Litwak and Hylton (1962), Evan (1966), Aiken and Hage (1968), and Terreberry (1968). Schein (1970:104-105) directly focused on the issue when he stated:

> Perhaps the most important argument for a systems conception of organization is that the environment within which organizations exist is becoming necessarily unstable. With the rapid growth of technology, the expansion of economic markets and rapid social and political change, come constant pressures for organizations to change, adapt and grow to meet the challenges of the environment.

The open systems concept allows organizations to be viewed as engaging in essential interactions with other organizations to maintain a dynamic equilibrium. This is accomplished by input, throughput and output activities, thus reducing entropy or rundown as would occur in a totally closed system.

Thus, open systems fulfill their own needs by input (or importing energy) from other systems, and the energy importation serves to fulfill the needs of other systems. This dynamic interaction provides more energy in input (through production and importation) than the organization expends through output, and allows the focal organization to maintain and enhance a dynamic equilibrium.

Because of this dynamic interaction between the multiple linkages of the organization and its environment, it is difficult to clearly delineate the boundaries of the organization. Andrews (1978:17) stated

> While organizations appear to exhibit characteristics such as size, shape, function or structure, they are better conceptualized as amorphous entities engaged in constant input, throughput and output processes.

Hall (1977:56) addressed another dimension of the open systems model when he suggested that organizations may be viewed as "natural-systems" in which the attainment of the specific goals of the organization is important but is only one of several needs that must be addressed as the organization adapts and reacts to environmental pressures. Since the ultimate goal of the organization is survival, and this necessity may lead to the neglect of other goals, any organizational changes may be viewed in this context as relatively unscheduled, adaptive processes that are emergent rather than guided by rationality and the necessity of attaining prescribed organizational goals.

The indications of the discussion to this point illustrate the open systems approach as being much broader and more exacting in scope than earlier perspectives on organizations. Hall (1977:59) warns of the problem of applying the open systems perspective in research:

> Few researchers have the tools or the ability to take into account all of the various components that must be included in even a relatively simple open systems model.

Despite the inherent problems, it is evident that organizations do accomplish many of their tasks, including input modification, output production, and identification of goals.

In attempting to reconcile the difficulties of applying the open systems concept to organizational research, Hall (1977:60) concluded that:

> In essence, organizations attempt to be rational, controlling their internal operations and environment to the greatest extent possible, but never achieving a totally closed rational system. How well the organization achieves rationality depends upon the strength of the internal and external pressures and the organization's capability of control.

Inter-Organizational Relationships

This section of the chapter deals with the inter-organizational relationships, or linkages, that are of vital necessity to the continuing well-being of many organizations. Van de Ven (1976:24) defines an inter-organizational relationship (IR) as a social action that occurs "when two or more organizations transact resources (money, physical facilities and materials, customers or client referrals, technical staff services) among each other." The reason for this association has been postulated by numerous writers (including Van de Ven, 1976; Litwak and Hylton, 1962, and Levine and White, 1961); that is, the formation of a new unit or structure that will allow the attainment of goals that are unachievable by those organizations functioning independently.

Organizations strive to remain individual and effective within the constraints of dealing with other organizations in the new unit. They do this by adoption of a structure and process system. Van de Ven (1976:25-26) offers these definitions:

> structure - refers to administrative arrangements established to define the role relationships among members.
>
> process - a flow of activities; i.e., the direction and frequency of resources and information flowing among members.

The direction of the information provided thus far regarding organizations has pointed towards the structural and process oriented activities. However, it is necessary to examine the boundary spanning function as perceived by open systems theorists. Tosi and Carroll (1976) note that the function of boundary spanning involves the connection of the inside of the system with organizations beyond the boundary of that system. Tosi and Carroll (1976:160-161) comment that "boundary-spanning sub-systems carry on the environmental transactions in procuring the input, disposing of the output, or assisting in these functions of the system".

To focus more closely on the purpose of this study, the conceptual framework of Marrett's (1971) work on interorganizational relations is of value. Marrett noted that a useful methodological approach to gathering data on interorganizational relationships was to focus on the relational aspects, particularly the degree of formalization, the degree of intensity and the degree of reciprocity. Andrews, Ratsoy and Hall (1980:4) argued that "an important indicator of the degree of formalization would seem to be the degree to which the interdependency between organizations is given official sanction." Along the same vein, Litwak and Hylton (1962) noted that a second indicator of formalization can be related to the development of some form of coordinating mechanism.

The issue of intensity revolves around the frequency of interaction between the organizations forming the partnership. This can vary from infrequent and informal meetings to highly organized, formal discussions involving critical issues. Marrett (1971:92) noted that both the frequency of interaction and the relative resource commitment of each participating organization could be measured. For example, if the senior personnel of each participating organization met each month to set up policies which would allow the transference of large resource allocations into the joint partnerships, the intensity of the relationship would be measured as "high". If, however, the resource commitment in terms of personnel, time allocated for meetings, and funds and services required by the relationship was not exchanged on a regular basis, the intensity was measured as low.

The measurement of effectiveness of any organization can be a tenuous effort at best. Andrews (1978:53) noted that "effectiveness is an extremely complex construct involving many variables." Hence, Andrews chose in his study to measure effectiveness in three ways: (a) by recording student perceptions on global measures of program effectiveness; (b) by examining the accreditation survey reports of the Canadian Medical Association on each program, and (c) by recording the performance on the national examination administered at each school.

Following the study, Andrews, Hall, and Ratsoy (1982) suggested that the perception of effectiveness among the joint cooperative programs may be related to linkage dimensions. In this article it was noted that:

> . . . program effectiveness, as measured by student achievement on a nation-wide examination, appears positively related to the formalization of the interorganizational linkages. However, program effectiveness as measured by student perception appears negatively related to formalization.

It is of value to note that any effort at making joint cooperative programs effective must be done within the constraints of the interdependent relationship of the members forming the program. This effort was noted in Andrews' (1978) thesis, and given the term 'integration'. Lawrence and Lorsch (1969:13) defined integration as the "perceived state of collaboration between major pairs of subunits," and this definition was accepted for purposes of this research.

Summary

This chapter was divided into three major sections: joint cooperative programs, the organization as an open system, and an overview of interorganizational variables. In the first section, the intent was to examine the reasons for interdependencies between post-secondary educational institutions and health care agencies (hospitals), and to present an overview for determining interorganizational relationships in human service organizations. Following this, the second section provided a description of open systems theory, and noted that the dynamic nature of organizations (in terms of their component parts and the external environment) allowed them to be appropriately viewed from the open systems perspective. The last section of this chapter presented an overview of interorganizational variables, with the emphasis on providing a conceptual framework using Marrett's (1971) linkage dimensions as the independent variables with which to examine the three health science programs included in this study.

Chapter 3 presents the research design and methodology used for this study.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

Chapter 2 reviewed the literature to help to formulate a definition for the term "joint cooperative program," to review the contemporary concepts of open systems theory as applied to organizations, and to examine research pertinent to inter-organizational variables and organizational relationships.

This study was concerned with examining the linkage variances that exist between post-secondary institutions and health care agencies involved in a joint cooperative program. Since joint cooperative programs are only developed when there is a degree of interdependence between the organizations involved, it seemed appropriate to consider these organizations as being sensitive to influences from other organizations over which they have limited control. The selection of the literature and the method of analyzing the three health science programs was made from an open systems perspective, which addresses the issues of the impact of the organizations on each other when they are related in a joint cooperative program. In order to learn whether post-secondary institutions developed similar linkage dimensions in their joint cooperative programs, it seemed necessary to select institutions that had similar external environments and were exposed to similar influences.

The literature on the open systems persepctive of organization relationships provided the rationale for this approach.

Organizations, as emphasized by open system theorists, are more than a mechanistic collection of individuals. A perceptual approach, therefore, appeared to be the most appropriate method for gathering data on how members of a joint cooperative program established program linkages. This, to some degree, would account for the dynamic aspects of the organizations involved in each program.

This chapter describes the design of the study and the method used in conducting the research and analyzing the data.

Design

The study design focuses on three variables of inter-organizational relationships: linkage dimensions, integration, and effectiveness.

The perceptions of linkage dimensions were evaluated using an interview guide, and the perceptions of the respondent on program integration were measured using a 25 question survey. The effectiveness of each program was measured by gathering data on completion rates.

The linkage dimensions were addressed in the interview guide by using three indicators: formalization, intensity and reciprocity. These indicators are explained in Table 1 and the measuring techniques for all of the variables are

TABLE 1

OPERATIONAL INDICATORS OF LINKAGE DIMENSIONS

Linkage Dimension	Explanation
1. Formalization	
Measurable variables:	
a) Formal agreement--written...informal	a) The degree to which the exchange is given official sanction
b) Coordination--formal coordinator...informal	b) The extent to which a specified individual coordinates the relationship
c) Procedural standardization--high...low i. Liaison committee terms of reference ii. Advisory committee terms of reference iii. Coordination procedures terms of reference	c) The extent to which procedures are clearly delineated
2. Intensity	
Measurable variables:	
a) Frequency of interaction--high...low	a) The kind and amount of involvement given the relationship
b) Relative resource commitment--high...low	b) The resource investment (human, funds or services) made by the program participants
3. Reciprocity	
Measurable variables:	
a) Resource reciprocity--unilateral...none	a) The degree to which resources are mutually exchanged
b) Definitional reciprocity--unilateral...none	b) The degree to which the terms of the interaction are mutually agreed upon

(From Andrews 1978; modified from Marrett, 1971).

discussed in the following sections. The technique for data analysis of the linkage dimensions measured by the interview guide is described in Appendix C.

Formalization

Five specific indicators were employed in order to measure formalization. The first was the official documentation of each joint cooperative program that sanctioned that program to train students. This includes formal agreements, contracts, and other written documents between the participants in the program. As well, the procedural guidelines for the formal coordination of the program (procedural standardization) and/or the presence of an actual program coordinator (structural standardization) were used as indicators of formalization. The existence of a program advisory committee and the existence of an institutional/hospital faculty liaison committee are distinctive features of formalization. Finally, the presence of other sub-committees of the above committees, e.g., examination and curriculum sub-committees, was included as further indication of program formalization.

Intensity

Andrews (1978) used two variables to measure the linkage dimension intensity--the number of formal meetings of the program constituents that are held each year, and the relative resource commitment. The formal meetings were measured in terms of the number of the liaison (or 'working committee') meetings held each year among the members of the joint cooperative programs. Resource commitment was measured by the amount of relative human and material resource commitments made by each of the participating members is the joint cooperative program.

Reciprocity

The amount of inter-institutional resource exchange was considered to be an indication of resource reciprocity, and the degree to which the terms of the relationship were mutually agreed upon by all program members was considered an indicator of definitional reciprocity. Resource exchange between the various institutions in each program included the exchange of instructional personnel, specific items of equipment available to other institutions in the program, and audio-visual equipment, instructional aids and textbooks.

Integration

Integration was defined by Lawrence and Lorsch (1969:13) as "a perceived state of collaboration between major pairs of sub-units", and three integration variables were used in this study. These variables were college contributions to integration, hospital contribution to integration and mutual (or two way) integration.

Each of the three programs studied was analyzed from the perspective of the degree of program integration as perceived by the faculty respondents. This information was obtained from the faculty respondents by means of a 25-item questionnaire which was adapted from Andrews' original questionnaire (see Appendix B). The major purpose of the questionnaire was to address the notion of integration as measured by three indicators: 1. the college contribution to the integration, 2. the hospital contribution to integration and 3. mutual or two-way integration among the program constituents. The data from each of the three programs were tabulated and a summary of the findings is presented. It should be noted that unlike Andrews' original research, which included the perceptions of both the faculty and the students, this research has limited its data collection to the faculty only.

Effectiveness

The measurement of effectiveness is "an extremely complex construct involving many variables" (Andrews, 1978: 53), and Scott (1977:64) noted that "there is no agreement about what properties or dimensions are encompassed by the concept of effectiveness." Therefore, for the purpose of the study, an objective indicator was used to measure effectiveness. The objective indicator was the completion rates, or the number of students registered compared to the number graduating in each program.

Methodology

This section contains a description of the instruments used to collect data for analysis, and the methodology employed to conduct the study.

The Interview Guide

In order to collect information on the linkage dimensions for the three programs, an interview guide modified after Andrews (1978) was used. The interview guide was designed to give a perspective from all the organizations involved in each of the three programs. As a result the researcher interviewed each of the three program heads of the allied health programs included in this study, and interviewed each of the department heads in the different clinical agencies related to each of the three joint cooperative programs. During the interviews, information was gathered to provide a background description of the program, as well as data on the dimensions of linkages between the organizations involved in each program. The interview guide was validated by expert personnel at the Department of Educational Administration, as well as through the designer of the original research instrument, Dr. M. Andrews. It was concluded on the basis of commentary from this panel of experts that the content validity of this instrument was reasonably established. (See Appendix A for a copy of the final instrument that was used as the interview guide).

The Survey Questionnaire

Since this research involves three different allied health professions with the attendant differences in nomenclature and organization, Andrews' questionnaire required some modification. However, it was possible to maintain the general structure of the instrumentation and to use the modified Likert scale for the survey questionnaire. This survey questionnaire included a series of questions using either a frequency of interaction scale ("never" to "frequently") or a quality of interaction scale ("very poor" to "excellent"). As well, the frequency scale was modified to provide more exacting measurements of time related activities, and the response categories for this scale varied from "never" to "seven or more times per year." Andrews had developed this questionnaire in order to examine variables such as the degree of 'intergroup collaboration' (which examined the teaching mobility of the instructors within the various institutions in the joint cooperative program), the design of the curriculum, and exam preparation. Included were items on sharing of equipment, the faculty's perception of student experiences in each institution, and any other intergroup program related items.

The questionnaire was also reviewed by expert personnel, including faculty members of the Department of Educational Administration at the University of Alberta, and the originator of the questionnaire, Dr. Andrews. Their suggestions for modification of the questionnaire were considered and the appropriate changes were made. Since thorough pilot testing of the questionnaire had been done by Andrews in his original study, it was thought to be unnecessary to repeat the pilot testing.

Selection of the Sample

Three allied health programs were selected for study. These three programs are the Nursing Assistant program, the Medical X-ray Technology program, and the Health Records Technology program. The Nursing Assistant program is offered through the Alberta Vocational Centre (A.V.C.) Edmonton. The Medical X-ray Technology program and the Health Records Technology program are offered through the Northern Alberta Institute of Technology (N.A.I.T.). Both of these institutions (A.V.C. - Edmonton and N.A.I.T.) are located in Edmonton, Alberta. Each of these three programs is affiliated with a number of teaching hospitals, and the name of each program, the institute or college where the program is located, and the affiliated hospitals are shown in Table 2.

The joint cooperative programs that were included in this study were selected on the basis of a number of considerations. The first consideration was to include programs of training that offered the students experience in two distinct phases. One of the phases, usually the first, would comprise a theoretical portion of the training, and the second phase would encompass the practical experience in a

TABLE 2

STUDY PROGRAMS AND AFFILIATED INSTITUTIONS

REGISTERED NURSING ASSISTANT PROGRAM

INSTITUTE OR COLLEGE	AFFILIATED HOSPITALS
Alberta Vocational Centre (A.V.C.) Edmonton	Royal Alexandra
	University of Alberta
	Edmonton General
	St. Joseph's
	Dickensfield Extended Care Centre
	Grandview Extended Care Centre
	Good Samaritan Extended Care Centre

MEDICAL X-RAY TECHNOLOGY PROGRAM

Northern Alberta Institute of Technology (N.A.I.T.) Edmonton	Edmonton:
	Royal Alexandra
	Edmonton General
	University of Alberta
	Misericordia
	Red Deer:
	Red Deer Regional
	Calgary:
	Foothills
	Calgary General

HEALTH RECORDS TECHNOLOGY

Northern Alberta Institute of Technology (N.A.I.T.) Edmonton	Edmonton:
	Royal Alexandra
	Edmonton General
	University of Alberta
	Misericordia
	Charles Camsell
	Glenrose Provincial
	Alberta
	Red Deer:
	Red Deer Regional
	Calgary:
	Foothills
	Calgary General
	Rockyview
	Holy Cross
	Colonel Belcher
	Alberta Children's
	Lethbridge:
	St. Michael's

clinical setting. All programs included in this research met this criterion.

The second consideration given to selection was environmental similarity; all of the programs were affiliated with at least three of the same hospitals, and the method for student intake was similar. As well, all of the programs had some of the affiliated hospitals within the city of Edmonton, and each program was affiliated with at least one university hospital. Only those hospitals meeting these criteria were included in the study.

The final consideration in the selection of the sample was that the programs should be different than the programs studied in Andrews' original research. Those programs included in Andrews' research were all Respiratory Technology programs, and were two-year joint cooperative programs. The programs selected for this study focused on other areas of clinical practice.

The study did not cover all clinical settings associated with each program (see Table 3). Criteria for selection of settings were that each clinical agency be within the Edmonton city limits, and that the clinical agency should be classified as a "general active treatment hospital" by the Canadian Hospital Association. All the clinical agencies selected met these selection criteria.

TABLE 3

SELECTED PROGRAMS AND AFFILIATED INSTITUTIONS

NAME OF PROGRAM	INSTITUTE OR COLLEGE	AFFILIATED HOSPITALS
Nursing Assistant Program	Alberta Vocational Centre (A.V.C.) Edmonton	Edmonton: Royal Alexandra Edmonton General University of Alberta
Medical X-ray Technology	Northern Alberta Institute of Technology (N.A.I.T.) Edmonton	Edmonton: Royal Alexandra Edmonton General Misericordia University of Alberta
Health Records Technology	Northern Alberta Institute of Technology (N.A.I.T.) Edmonton	Edmonton: Royal Alexandra University of Alberta Misericordia Edmonton General

Selection of Respondents

The head of the didactic portion of the program and all full-time instructional staff were included in the research population. All department heads of each of the departments in the affiliated hospitals, and all hospital personnel designated as instructional staff in those departments who had knowledge of the training program were invited to participate in this research study. Thus, the research population involved the senior administrator and all full-time instructional staff in both the didactic and clinical portions of the program.

Permission to Conduct Research

In order to ensure that permission to conduct research was forthcoming from the three programs to be studied, the presidents of each of the two institutions involved were contacted by the researcher (see Appendix E). All reacted favorably, and the program heads were then contacted by letter to arrange for interviews and questionnaire administration (see Appendix F). Each of the three program heads agreed to introduce the researcher to the clinical department heads of the hospitals involved in presenting the clinical portion of the program. As well, the program heads agreed to be interviewed by the researcher, and to accept the responsibility for administering the questionnaire to all the instructional staff within their institution. The program heads also agreed to ensure that the completed questionnaires would be returned to the researcher for analysis. This delivery was accomplished both by mailing and personal pick-up of the sealed envelopes.

The department heads of the clinical departments where the students completed their clinical practicum were contacted by the researcher and permission was given to proceed with the study. Since there were three programs (two of which interacted with four Edmonton hospitals, and one which interacted with three Edmonton hospitals) to be included within the parameters of this study, a total of 11 hospital representatives were contacted by the researcher. These personnel agreed to be part of the study themselves and to be included in an interview conducted by the researcher.

Data Collection

Program data collection and on-site visitations occurred during May, 1983. Information on the linkage dimensions for each of the three joint cooperative programs was collected by means of an interview with each of the college program heads and the department heads of the affiliated hospitals. Program-related literature and other documents provided further information.

After the interviews were conducted, the faculty questionnaires relating to program integration were given to the hospital department heads and college program heads. These were then distributed to the appropriate faculty, and were returned to the researcher either by mail or by personal pick up. All respondents were provided with stamped, addressed envelopes to facilitate instrument return and to ensure respondents of anonymity. Each hospital and college coordinator was given a number of questionnaires in accordance with their staffing complement.

Analysis of Data From Interviews

The purpose of the personal interviews with program heads and department heads included in this study was to verify and provide in-depth information on linkage activities. The data gathered in the interviews were analysed in order to prepare a tabular report on program linkage dimensions, which is provided for each program in Chapter 4. The personal demographic variables were coded for analysis, and are presented in Chapter 4, Research Findings.

Analysis of Data From Questionnaires

Data from the completed research instruments on the degree of integration were coded for computer analysis. The responses were coded in the following manner: "1" for a response which represented either the "very poor" or "never" response categories, on up to "5" for the "excellent" or "frequently" response categories. The same method was used for coding of all other questions, with the lower numerical number indicating low frequencies and "5" indicating seven or more times per year.

The University of Alberta Division of Educational Research Services (DERS) statistical package for social sciences (SDSS) program titled "Frequencies" was used for the initial analysis of the responses involving the percentage distributions of responses on all items from the integration research instrument.

Comparative analysis of the three programs was achieved using a DERS program, Anova 15. This program supplied information on the within - group variants and the between - groups variants, using an "F-test" and the Scheffé multiple comparison of means test, thus permitting examination of differences in perceived integration between programs.

Summary

This chapter was divided into two major sections: research design, and methodology. In the first section, the three linkage concepts of formalization, intensity, and reciprocity were discussed, including the indicators that were used to measure these variables. Following this, the concept of integration was delineated, and the three integration variables were outlined. In concluding this section, the measurement of effectiveness used in this study was specified.

In the second section, an outline of the research methodology was developed. This included a discussion on the interview guide and survey questionnaire, followed by an overview of the sample programs and selection of respondents.

In addition, this section described the method of collection and analysis of data from interviews and questionnaires.

The next chapter presents information and analysis for each program included in the study. This information on the three programs includes a brief description of the program, a linkage dimension profile for each program, and an analysis of the degree of integration and the effectiveness of each program in terms of completion rate.

CHAPTER 4

THE FINDINGS

Introduction

The major focus of this chapter is the analysis of the data obtained by the interviews and questionnaires on the three allied Health Science programs included in this study. These three programs, in order of presentation, are the Registered Nursing Assistant program, the Medical X-ray Technology program, and the Health Records Technology program. The chapter is divided into four major sections. The first section provides a description of the respondents, and includes the distribution and rate of return of the respondents who participated in this study. This description is based on the selected personal and demographic variables measured by the research instruments. The next three sections focus on reporting the results of the investigation of the five concepts of organizational interaction for each of the three programs under study. These five concepts are formalization, intensity, reciprocity, integration and effectiveness.

Respondents

Distribution

Table 4 presents a summary of responses by program. Included in the questionnaire survey were each of the three

TABLE 4

QUESTIONNAIRE RESPONSES BY PROGRAM

Program	Respondent Group	Possible Responses	Actual Responses	Percentage Responses
Registered Nursing Assistant Program	College	13	13	100%
	Hospital	3	2	66%
Medical X-ray Technology Program	College	4	4	100%
	Hospital	25	22	88%
Health Records Technology Program	College	3	3	100%
	Hospital	15	15	100%
TOTAL		63	59	94%

The term "program" includes both college and hospital components, e.g., "Registered Nursing Assistant Program" refers to both the theoretical and clinical components.

program heads at the college level, each of the department heads of the three different types of programs studied at the four hospitals included in the study, and the appropriate instructional personnel in each hospital and institution studied.

The R.N.A. program had a total of 16 questionnaires distributed, and 15 were returned. The Medical X-ray program had a total of 29 questionnaires distributed and 26 were returned. In the Health Records Technology program, all 18 of the questionnaires that were distributed were returned.

Characteristics

In order to describe and group the respondents in this study, data were collected on five personal and demographic variables. These data revealed that three of the respondents were college program directors, 11 of the respondents were hospital directors, department heads or specific personnel entrusted with the coordination of a particular educational program, and the remaining 45 respondents were faculty at the hospital or college level in each program.

Data concerning years of experience of all faculty at all institutions were collected and presented as Table 5. Analysis of the data in Table 5 shows that in the Registered Nursing Assistant program, seven of the 15 respondents have been in their present position two years or less, while eight of the 26 respondents in the Medical X-ray Technology program have been in their positions for three years or less. None

TABLE 5

YEARS IN CURRENT POSITION OF FACULTY RESPONDENTS AND YEARS OF EXPERIENCE

Program	Number of Respondents		Years 1	2	3	4	5	6	7	8	9 or more
Registered Nursing Assistant Program	15	Current Position	3	4	2	2	0	0	1	0	3
		Experience	0	0	0	1	0	0	0	0	14
Medical X-ray Technology Program	26	Current Position	2	6	1	0	1	1	1	0	14
		Experience	1	1	0	0	0	1	0	4	19
Health Records Technology Program	18	Current Position	0	0	2	2	1	1	6	2	4
		Experience	0	0	1	2	1	1	1	1	1
TOTAL	59	Current Position	5	10	5	4	2	2	8	2	21
		Experience	1	1	1	3	1	2	1	5	34

of the Health Records Technology program respondents have been in their positions for two years or less. However, the mean years experience for the Registered Nursing Assistant program faculty was 8.7; for the Medical X-ray Technology program the mean years experience was 15.2, and the Health Records Technology program instructors had an average of 7.5 years of experience in their profession.

The final demographic variable included in this study was the highest level of education attained by each of the respondents. Less than half of the respondents indicated that they had had some university education, while 12 of the respondents had at least one university degree, and two had more than one. All respondents had had some post-secondary education, either at a technical college or at a university.

The Registered Nursing Assistant Program

The Registered Nursing Assistant (R.N.A.) Program is described in the school calendar as a course that prepares the student to work as a para-professional. The Registered Nursing Assistant supports the attainment of the goals of nursing with specified clients through participation in selected aspects of the nursing process. This program is a result of the amalgamation of the Nursing Aide and Nursing Orderly programs, which occurred in 1979. The graduate of this program is prepared to function in an assisting and supervised capacity in the practice of nursing. The

Registered Nursing Assistant Program included in this research project is located at the Alberta Vocational Centre (A.V.C.) in Edmonton, which is a provincial institute administered by the Department of Advanced Education. The R.N.A. program is affiliated with three major hospitals in Edmonton, and four auxiliary hospitals. There are five intakes of students each year, with approximately 30 students in each intake. The length of the course is 38 weeks in total, with 34 weeks of classroom and laboratory experience at A.V.C., followed by four weeks of clinical practice in an affiliated hospital. The pre-requisites for the course are: a grade 10 English course, grade 10 Mathematics and one grade 10 science. The successful applicant must be at least 18 years old, and must be in good physical health. Following successful completion of the course, the graduate is eligible to become registered in the province of Alberta because the A.V.C./R.N.A. programs meets the requirements of the provincial Department of Advanced Education. In order to register, the graduate must apply for registration with the Alberta Association of Registered Nursing Assistants, and maintain annual payment of dues.

A national examination, called the Canadian Nursing Assocation Testing Service (CNATS) examination is available but not required by the province of Alberta. This examination is provided by the Canadian Association of Registered Nurses.

Interorganizational Variables

The interviewing of the senior administrative personnel from each program was necessary in order to establish linkage dimensions between the various organizations involved in each program. A structured interview guide was used (see Appendix B), and the method of identification of these linkage dimensions followed Andrews' (1970) coding system (see Appendix C).

Formalization of the relationship.

The Registered Nursing Assistant program is sanctioned by a formal agreement between the Alberta Vocational Centre and the hospitals affiliated with this program. The President of the Alberta Vocational Centre signs this contract as a representative of the Department of Advanced Education for the province of Alberta, and the Executive Directors of the hospitals sign as representatives of the Hospitals' Board of Directors. The R.N.A. program appeared to be highly formalized (see Table 6) as there are legal contractual agreements between the organizations involved in this program.

The Department Head of the R.N.A. program at the Alberta Vocational Centre is the formal coordinator of the program, and has total responsibility for the overall program. As a result, the degrees of coordination as indicated by the existence of a formal coordinator was measured as a high degree of coordination (see Table 6).

TABLE 6

PROFILE OF LINKAGE DIMENSIONS FOUND IN THE REGISTERED NURSING ASSISTANT PROGRAM

Linkage Dimension	1[1]	2	3	4	5
A. Formalization of the relationship					
a) Formal agreement (informal... written)					X
b) Coordination (informal coordinator... formal)					X
c) Procedural standardization (low...high)					
i) Liaison committee terms of reference	X				
ii) Advisory committee terms of reference					X
iii) Coordination procedures			X		
B. Intensity of the Relationship					
a) Frequency of interaction (low...high)					
i) Liaison committee meetings	X				
b) Relative resource commitment (low...high)					
i) College					X
ii) Hospitals	X				
C. Reciprocity of the Relationship					
a) Resource reciprocity (low...high)	X				
b) Definitional reciprocity (unilateral...mutual)					
i) Liaison committee terms of reference	X				
ii) Advisory committee terms of reference	X				
iii) Coordination procedures	X				

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[1] Each indicator was rated in accordance with a scale that ranged from one to five. The basis for this scale is shown in parentheses following each indicator (e.g., informal (1)... written and formalized (5).

The measurement of procedural standardization was influenced by three variables in the R.N.A. program; the liaison committee terms of reference, the advisory committee terms of reference, and the existence of clear and explicit coordination procedures between the institute and the three hospitals included in this study.

The R.N.A. program does not have a formal liaison committee structure in the program, and thus was rated as low in the measurement of procedural standardization (see Table 6).

The Advisory Committee terms of reference are clear and explicit, and are the standardized Advisory Committee terms of reference used for all programs at the Alberta Vocational Centre. The R.N.A. Advisory Committee meets biannually and is composed of approximately 12 members, including the Department Head and other administrators from A.V.C., and representatives from the Alberta Hospital Association, the Alberta Association of Registered Nurses, the Alberta Association of Registered Nursing Assistants, the Alberta Association of Registered Nursing Orderlies, and the Nursing Assistant Registration Board. As well, there are two members of the general public and two graduates of the program represented on the Advisory Committee. The rating of "5" on the linkage dimension scale reflects this high degree of formality of procedural standardization.

The coordination procedures for the R.N.A. program are the responsibility of the Department Head and the two clinical coordinators of the program. The clinical coordinators are involved with the day-to-day contact with the nursing units to which the students are assigned in the participating hospitals. The actual coordination procedures in the form of written documentation are not used for this program and were rated accordingly on the measurement of coordination procedures (see Table 6).

Intensity of the relationship. The two variables (see Table 6) investigated to measure the intensity of the relationship were the frequency of meetings of the liaison committee, (or working committee) and the amount of resource commitment of the participants (institutions and hospitals) in the program. The R.N.A. program does not have a liaison committee, and this was rated as "1" on the 5 point scale. The second indicator, that of resource commitment, reflected the program organization of the R.N.A. program. The hospitals' representatives involved in the clinical training of these students arranged for the students to use their patient wards and have interactions with the hospital staff, but did not involve themselves in the actual training of the students. The A.V.C. was the sole funding source, including payment for all of the clinical instructors, who are, in fact, the college instructors. As a result, the A.V.C. commitment was scored as "5" or "high", while the hospital commitment was scored as "1" or "low".

Reciprocity of the relationship. The measurements of reciprocity in the relationship between the members of the R.N.A. program were twofold in nature. First, the resource reciprocity was measured by examining the degree to which the resources are shared or exchanged by the constituents of the program. In the R.N.A. program, the Centre has all the facilities and equipment required to adequately train the students, and therefore the actual amount of exchange was very low or non-existent (see Table 6). However, the interviewees stated that this was primarily due to the lack of need for exchange rather than a lack of cooperation among the program participants.

The other measure of reciprocity was definitional reciprocity, which examined the degree to which the written terms of interaction were mutually agreed upon. The terms of interaction included in this study were the liaison committee terms of reference, the advisory committee terms of reference, and the written coordination procedures. This indicator only applied to the Advisory Committee terms of reference, as the R.N.A. program does not have a liaison committee, and there are very few written coordination procedures available in the program. Because the terms of reference for the Advisory Committee are regulated by the A.V.C., the mutuality of agreement was scored as "1", a unilateral decision by one institution.

Integration by College - Frequency Scale

Table 7 presents the findings concerning the frequency of the college contribution activities towards program integration for the Registered Nursing Assistant program.

Four of the six activities included in the survey questionnaire received scores of either "4" or "5" on the five-point scale indicating that the frequency of college/ faculty integration activity was perceived to be between "often" and "frequently". Question three, which asked about the frequency with which equipment was provided by the college to the hospital, showed a response indicating that very rarely or seldom was this the case. These responses accurately reflect the structure of the Registered Nursing Assistant program, which allows the students to receive theoretical and laboratory instruction at the college, followed by clinical practicum experience in the hospital.

In the R.N.A. program the college instructors are hired by the college to teach both the theoretical and the laboratory portion of the course at the college level, and then travel with the students to be part of their educational experience in the clinical setting. This was further detailed by the fact that nine respondents gave the final item on the frequency scale a rating of "5", indicating that the students in their clinical portion used the college exclusively for classroom activities while they were given clinical experience on the hospital wards.

TABLE 7

COLLEGE CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--REGISTERED NURSING ASSISTANT PROGRAM

Item	Frequency[1]					N[3]	Mean
	1	2	3	4	5		
In preparation of final hospital examinations assistance is received from the college instructors	0	0	0	2	11	13	4.85
In the determination of the course content for the hospital portion of the program input is received from the college instructors	0	0	0	4	11	15	4.73
How frequently is equipment provided by the college for the hospital components of the program	2	5	4	0	4	15	2.93
In general, how often do college instructors actively teach in the hospital portion of the program	0	0	0	2	13	15	4.87
How frequently do college instructors visit the hospital on a regular basis for the purpose of gaining clinical experience	2	1	1	0	11	15	4.13
How often are classes held at the college during the clinical year for students of participating hospitals	4[2]	0	0	0	9	13	3.77

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[1] The scale used for these items was: 1=never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for this item was: 1=Never; 2=1 or 2 times per year; 3=3 or 4 times per year; 4=5 or 6 times per year; 5=7 or more times per year.

[3] Where "n" is not equal to 15, the difference is equal to the number of respondents who did not answer that question.

Integration by College - Quality Scale

Table 8 presents the questionnaire items which relate to the Registered Nursing Assistant program, and the quality of the college contribution to integration as perceived by the respondent to the questionnaire. The first two of the three items on Table 8 were related to curriculum activities of the first year, and the respondents were asked to rate the quality of these curriculum activities in terms of relationships and relevancy to the clinical year. For the R.N.A. program, the majority of the respondents indicated that the quality was either "good" or "excellent" on the five-point scale. The last item on the quality scale rated the communication from the college to hospital, and the answers for the R.N.A. program indicated that the communication was considered "good".

Integration by Hospital - Frequency Scale

By using questions similar to those used for accessing information for the college contribution to integration, six items on the questionnaire were addressed to the respondents concerning the hospital contribution to program integration. Findings related to the frequency of the hospital contribution activities for the Registered Nursing Assistant Program were tabulated and are presented in Table 9. The responses to the six items are not inconsistent with the findings on similar items for the college contribution dimension. It should be emphasized that in this

TABLE 8

COLLEGE CONTRIBUTION DIMENSION SCORES QUALITY SCALE--REGISTERED NURSING ASSISTANT PROGRAM

Item	Quality[1]					N	Mean
	1	2	3	4	5		
In general, how well does the theoretical knowledge presented in the first year relate to the practical application of that knowledge during the clinical year. Relationship is	0	0	0	6	9	15	4.60
To what extent are the laboratory procedures as taught during the theoretical year relevant to the practical procedures of the clinical year. Relevancy is	0	0	0	10	5	15	4.33
When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college). Speed of communication from college to hospital is	0	0	3	6	6	15	4.20

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[1] The scale used for these items was: 1=very poor; 2=poor; 3=fair; 4=good; 5=excellent

TABLE 9

HOSPITAL CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--REGISTERED NURSING ASSISTANT PROGRAM

Item	Frequency[1]					N	Mean
	1	2	3	4	5		
In preparation of final college examinations assistance is received from the hospital instructors	1	0	0	3	11	15	4.53
In the determination of the course content for the college portion of the program input is received from the hospital instructors	1	0	1	3	10	15	4.40
How frequently is equipment provided by the hospital for the college components of the program	9	3	1	0	2	15	1.87
In general, how often do hospital instructors actively teach in the college portion of the program	1	1	2	2	9	15	4.13
How frequently do hospital instructors participate in in-service programs or professional development activities at the college	3	6	5	0	1	15	2.33
In general, how often are hospital visits held during the first year of the program	2[2]	1	1	0	11	15	4.13

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[1] The scale used for these items was: 1=never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for this item was: 1=Never; 2=1 or 2 times per year; 3=3 or 4 times per year; 4=5 or 6 times per year; 5=7 or more times per year.

program both the college and the hospital "instructors" are one and the same, as the college instructors travel to the hospital to teach their students there at the clinical setting. As a result of this fact, the first two items on this scale can be somewhat misleading. The items require the respondent to differentiate between the college and the hospital instructors, and clearly this is impossible in this case, since they are one and the same person. However, in item three, the response was clearly towards an infrequent use of hospital equipment by the college component of the program. This is because the college has sufficient program space and equipment to teach their students during the students' term at the college. In the final question, which asks the respondents to state their perception of the number of hospital visits held during the first year of the program, the respondents primarily answered "never". This is because the Registered Nursing Assistant students do not require hospital visitations until their clinical training portion begins.

Integration by Hospital - Quality Scale

This section deals with the respondent's perceptions of the quality of the contribution by the hospital to the integration of the program.

In Table 10 the item relating to the quality of the hospital visitations that occurred during the theoretical portion of the first year of the program was scored between

TABLE 10

HOSPITAL CONTRIBUTION DIMENSION SCORES QUALITY SCALE--REGISTERED NURSING ASSISTANT PROGRAM

Item	Quality[1]					N[2]	Mean
	1	2	3	4	5		
During the theoretical portion of the program how adequate are the planned hospital visits in reinforcing the theoretical learnings of the first year. Adequacy is	0	0	2	4	8	14	4.43
When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college) Speed of communication from hospital to college is	1	3	2	4	5	15	3.60

[1] The scale used for these items was: 1=Very Poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[2] Where "n" is not equal to 15, the difference is equal to the number of respondents who did not answer that question.

"excellent" and "good" on the five-point scale. The other item that was directed at communications from the hospital to the college was rated as being between "fair" and "good".

Mutual (Or Two-Way) Integration - Frequency Scale

The first two of the three items in Table 11 were designed to reflect the perceptions of the respondents of the frequency of communication between the two levels of program personnel. Both of these items were rated as "five" on the five-point scale, indicating that the perceptions of the respondents were that there was frequent communication (other than at committee meetings) between the college progam head, college instructional staff, and hospital instructional staff. The last item which asked the respondents to report on their perceptions of the degree of consultation on student selection, 13 of the 15 respondents answered "one" or "never" on the five-point scale. This reflects the policy of the program to have only the staff at A.V.C. Edmonton involved in the selection process for the R.N.A. program.

Mutual (Or Two-Way) Integration - Quality Scale

Table 12 presents the data concerning the quality of the mutual integration activities for the Registered Nursing Assistant program. The first item, which asked the respondents to give their perceptions on the effectiveness of the present college - hospital relationship in permitting maximum utilization of available resources was perceived to

TABLE 11

MUTUAL CONTRIBUTION DIMENSION SCORES
FREQUENCY SCALE--REGISTERED NURSING ASSISTANT PROGRAM

Item	Frequency[1]					N	Mean
	1	2	3	4	5		
The college program head and the hospital student coordinator (instructor) communicate (other than at committee meetings)	0	0	0	0	15	15	5.00
College/hospital instructional staff communicate (other than at committee meetings)	0	0	0	0	15	15	5.00
How much consultation is there between the college and hospital staff in the selection of students for the program. Consultation occurs	13	0	0	0	2	15	1.53

[1] The scale used for these items was: 1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

TABLE 12

MUTUAL CONTRIBUTION DIMENSION SCORES QUALITY SCALE--REGISTERED NURSING ASSISTANT PROGRAM

Item	Quality[1]					N	Mean
	1	2	3	4	5		
How effective is the present college/hospital relationship in permitting maximum utilization of available resources (people, time, money, etc.) from the various participants of the program. Effectiveness is	0	0	3	7	5	15	4.13
How adequate are the lines of communication between the college and hospital in assisting the overall program to keep current with the latest developments. Adequacy is	0	2	0	7	6	15	4.13
From time to time program related problems arise which require some kind of joint problem solving between the college and hospital in coping with program related problems as they arise. Adequacy is	0	0	4	7	4	15	4.00
In general, how would you rate the integration of the hospital and college components of the program. Integration is	0	0	3	5	7	15	4.27

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[1] The scale used for these items was: 1=Very Poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

be between "three" and "five" on the five-point scale, with "four" or "good" as being a modal score. The second item, which questioned the adequacy of the lines of communication between the college and hospital in assisting the overall program to keep current with the latest developments, was perceived to be between "good" and "excellent" by the respondents, with "fair" or "good" being the modal score. Problem solving abilities in coping with program related problems as they arose was perceived to be "good" as well by the respondents. The last item, which was considered to be an overall indicator of the program integration, received a mean score of 4.27 or between "good" and "excellent" on the five-point scale, while seven respondents indicated the integration was "excellent".

Effectiveness

The objective measurement of the effectiveness of the R.N.A. program was the completion rates of the participants in the program during the school year 1982-83 (see Table 13). There were 195 full-time and 17 part-time enrollments in the five intakes during that year, resulting in 212 students being admitted for training into the R.N.A. program. The part-time students were those students who were technically ineligible for registration because they had allowed their registration to lapse. They were therefore required to have further upgrading to achieve the current requirements of the R.N.A. program. By the end of 1983, 131 of the 195

TABLE 13

COMPLETION RATES FOR THE
REGISTERED NURSING ASSISTANT PROGRAM

Academic Year	1982-83	
Quota	200	
	FT	PT
Enrollments	195	17
Graduates	131	15
Completion Rate	69%	

full-time students had graduated, and 15 of the 17 part-time students had successfully completed the course requirements. Therefore, the overall completion rate for 1983 was 146 of the potential 212 students enrolled, or 69 percent.

Summary of the Findings for the R.N.A. Program

The Registered Nursing Assistant program was scrutinized using five interorganizational linkage dimensions: formalization, intensity, reciprocity, integration and effectiveness.

The data involving the R.N.A. program indicated that the linkage dimension of formalization was relatively high, as suggested by the existence of formal contractual relations between each of the four major parties included in the study and the scope of responsibilities of the formal coordinator.

The second linkage dimension of intensity indicated that there was considerable coordination amongst the constituents of the program, although the design of the program did not require hospital-based instructional staff. As noted in the section on the description of the R.N.A. program, the instructors at the Alberta Vocational Centre (Edmonton), where the R.N.A. program is situated, traveled to the hospital to instruct during their students' practicum at the clinical setting. As a result, a major resource commitment resides with the Alberta Vocational Centre, and there is little commitment by the hospital at this level.

This aspect influenced the linkage dimension of reciprocity, as the degree of exchange between the various constituents in the program was relatively low. The definitional reciprocity, as measured by the degree to which the terms of the relationship were originally agreed upon, was also found to be low.

The perceptual data relating to the degree of program integration were presented by measuring the frequency and quality of the college contribution, hospital contribution and mutual contributions to integration. Specific assessment of the findings are difficult (except on an item-to-item basis); however, some generalizations can be extrapolated from the data. The Alberta Vocational Centre Registered Nursing Assistant program appears to consist of two distinct but unequal phases: the theoretical phase at the Vocational Centre and the clinical phase at the hospitals. The faculty were located at the Vocational Centre, and used the Centre for didactic and laboratory presentations. The same faculty accompanied the students to the clinical agencies where patient interaction occurred. Equipment was not shared among the institutions involved unless a specific need could be identified. Cooperation and communication among the constituents of the program appeared to be "good" to "excellent" on the five-point scale. The mutual or two-way integration variables appear to be rated higher than either the college or the hospital contribution to integration.

The completion rates of the R.N.A. program for the 1982-83 school year indicated that the enrollments were 9% higher than the quota, and that 69% of the students registered successfully completed the program.

Medical X-Ray Technology Program

The Medical X-ray Technology program provides the student with training in the art and science of correctly positioning the patient and X-ray equipment to produce images on various media for the purpose of visualizing the extent of disease or injury to that patient. The central school in Alberta for the program is located at the Northern Alberta Institute of Technology in Edmonton, and has seven hospitals in Red Deer, Calgary and Edmonton that are affiliated with the program. The two year program has been accredited by the Canadian Medical Association Committee on Conjoint Accreditation, and is composed of approximately nine months of training at the Northern Alberta Institute of Technology followed by 16 months training at an affiliated hospital. The student, in order to be accepted into the Medical X-ray Technology program, must have the following pre-requisites: English 30, Math 30, 33 or 31 plus two of Physics 30, Chemistry 30, Biology 30, and one other grade 12 five credit subject. The overall average for the subjects must be 50%, with no subject having a grade of less than 50%. There are 60 students accepted into the Medical X-ray program each year, and upon successful completion of the two-year course they are eligible to challenge the National Registration examination of the Canadian Association of Medical Radiological Technicians.

Formalization of the relationship. The Medical X-ray Technology program, as situated at the Northern Alberta Institute of Technology (N.A.I.T.), and the four clinical settings included in this study, showed a low degree of formalization as noted by the absence of formal contracts or agreements to operate the program (see Table 14). Thus, formalization as measured by degree of coordination was noted to be "1" indicating that an informal liaison existed between the college and hospital faculty. Although there is no specific formal coordinator the for program, the college program director acts as the overall program coordinator (in addition to duties solely concerning the college). For this reason, the coordination dimension was rated as "4."

TABLE 14

PROFILE OF LINKAGE DIMENSIONS FOUND IN THE MEDICAL X-RAY TECHNOLOGY PROGRAM

Linkage Dimension	1	2	3	4	5
A. Formalization of the relationship					
a) Formal agreement (informal... written)	X				
b) Coordination (informal coordinator... formal)				X	
c) Procedural standardization (low...high)					
i) Liaison committee terms of reference					X
ii) Advisory committee terms of reference			X		
iii) Coordination procedures			X		
B. Intensity of the Relationship					
a) Frequency of interaction (low...high)					
i) Liaison committee meetings				X	
b) Relative resource commitment (low...high)					
i) College					X
ii) Hospitals				X	
C. Reciprocity of the Relationship					
a) Resource reciprocity (low...high)	X				
b) Definitional reciprocity (unilateral...mutual)					
i) Liaison committee terms of reference					X
ii) Advisory committee terms of reference	X				
iii) Coordination procedures		X			

Each indicator was rated in accordance with a scale that ranged from one to five. The basis for this scale is shown in parentheses following each indicator (e.g., informal (1)... written and formalized (5).

Procedural standardization was measured by the three areas of liaison committee terms of reference, advisory committee terms of reference, and coordination procedures.

The liaison committee, or "Education Committee" of the Medical X-ray Technology program, meets four to six times each school year, and is chaired by an elected member of the committee. All the N.A.I.T. X-ray staff, the clinical instructors of the participating hospitals and the medical advisor to the X-ray program are represented at the two-day education committee meetings. The terms of reference for this committee are clearly written, and these serve to delineate program responsibility and student policies. As a result of these data, the procedural standardization, as measured by the "liaison committee terms of reference", was scored as "5" on the 5 point scale, indicating that the program responsibility and inter-relation mechanisms were clearly delineated.

The advisory committee terms of reference are the standardized advisory committee terms of reference as used for all programs at N.A.I.T. These indicate the scope of responsibility of the advisory committee, and clearly state that the recommendations of the advisory committee will be taken into consideration but not always explicitly acted upon by the N.A.I.T. program. The advisory committee meets biannually, and is composed of all the medical directors of the hospital programs, one member from the Alberta Hospital Association, the chairperson of the Education Committee, and the medical advisor to the N.A.I.T. program. As well, the N.A.I.T. administration is represented by the Program Head, the Medical Science department head, and the director of the Technology Division, in which the Medical X-ray Technology program is administered. Because the structure and function of this committee are relatively informal, the rating on the scale was "3" or "generally understood" (see Table 14).

The coordination procedures between the representatives of the theoretical and clinical program constituents are relatively informal; the education committee is charged with the responsibility of dealing with the organization of policies that direct the students' training throughout the two year program. As a result of this data, the coordination procedures were rated as "3" or "generally understood" (see Table 14).

Intensity of the Relationship

The intensity of the relationship was measured by the frequency of interaction of the liaison committee and the relative resource commitment (see Table 14). The liaison committee is synonymous with the term education committee, and is composed of instructors from the various institutions, members representing the professional society, and the medical director of the N.A.I.T. program. This committee meets four to six times per year and meetings usually last all day. Therefore, the intensity of the relationship was rated as high (4).

The second indicator, the relative resource commitment indicator was based on the availability of a specific budget for expenditures incurred due to involvement in the joint cooperative program. The N.A.I.T. program has four full-time instructors, one program head, and over 1.3 million dollars in capital inventory, and the rating of "5" was given indicating that a specific large budget does exist. This indicator was more difficult to quantify with the participating hospitals; however, the second year students are provided with a stipend of $450 per month, and money was available to a limited extent for education related expenses. The actual budgetary procedures appeared to vary from hospital to hospital although all four hospitals provide a full-time instructor for the second year students. When interviewed, all hospital department heads stated they considered their resource commitment to the program to be high. This is reflected in the score of "4" on the five point scale, indicating that the funds were available from the global departmental budget to participate in the conjoint program.

Reciprocity of the relationship. The third linkage dimension delineated in the program was the reciprocity of the relationship as measured by examining the degree to which resources were shared or exchanged among program constituents. (The term "sharing" refers to actual transfer of equipment or services from one institution to another;

"input" to the program, however, implies the capital expenditure made by an institution toward the operation of the program within that institution). As each institution had its own equipment, and because of size and cost it was not feasible to move this equipment from one institution to another, the degree of resource sharing between the program members was rated as "low" or "non-existent" (see Table 14).

The second measure of reciprocity was definitional reciprocity, which examined the degree of mutual agreement for the written terms of interaction. The liaison committee terms of reference were considered by the respondents to be mutually agreed upon, while the advisory committee terms of reference were viewed as being based on a unilateral decision by N.A.I.T. The rating of the former on the five point scale was "5" or "mutually agreed upon", while the latter was rated as "1" or "unilateral decision" by one institution. The coordination procedures between the members of the joint cooperative programs were described by the respondents as having general agreement among the four institutions included in this survey. The rating of "3" reflects the generality of this perception.

Integration by College - Frequency Scale

Table 15 presents the findings concerning the frequency of the college contribution activities towards program integration for the medical x-ray technology program.

TABLE 15

COLLEGE CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--MEDICAL X-RAY TECHNOLOGY PROGRAM

Item	Frequency[1]					N[3]	Mean
	1	2	3	4	5		
In preparation of final hospital examinations assistance is received from the college instructors	0	2	2	12	5	21	3.95
In the determination of the course content for the hospital portion of the program input is received from the college instructors	1	1	6	6	6	20	3.75
How frequently is equipment provided by the college for the hospital components of the program	8	10	1	2	1	22	2.00
In general, how often do college instructors actively teach in the hospital portion of the program	8	9	5	1	0	23	1.96
How frequently do college instructors visit the hospital on a regular basis for the purpose of gaining clinical experience	9	12	0	1	0	22	1.68
How often are classes held at the college during the clinical year for students of participating hospitals	1[2]	7	11	0	2	21	2.76

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[1] The scale used for these items was: 1=never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for this item was: 1=Never; 2=1 or 2 times per year; 3=3 or 4 times per year; 4=5 or 6 times per year; 5=7 or more times per year.

[3] Where "n" is not equal to 26, the difference is equal to the number of respondents who did not answer that question.

Following tabulation of the questionnaire items reflecting the perception of the frequency of college contribution to the Medical X-ray Technology program, the first item showed a mean of 3.95, indicating that there was significant input from the college instructors into the hospital final examination. As well, the second item showed that there was indication of input by the college instructors into the hospital portion of the program and its course content. However, the next four items, dealing with equipment provided by the college and activities of college instructors in the hospitals, showed a marked change; in these activities most of the scores were given "never" or "rarely". This marked difference is primarily due to a separate and a more formalized system of program management in each of the two years of the program; that is, there is a program director and instructional staff at the college and there is a formalized hospital education system in the clinical year. This was further emphasized by the responses to item five, which asks the frequency that college instructors visited the hospital for the purpose of gaining clinical experience. The responses were primarily scored as either a "1" or a "2" on the five point scale, indicating the frequency was perceived between "rarely' and "never".

Integration of College - Quality Scale

As shown in Table 16, the respondents' perception of the college's quality of curriculum activities in the first year in terms of relationship and relevancy to the clinical year were thought to be between "fair" and "good" in terms of mean scores but the modal response in every case was "good". The last item which asked the respondents to relate to the speed of communication from the college to the hospital was also considered to be "fair".

Integration by Hospital - Frequency Scale

Table 17 lists six items in which the respondents were asked to give their perception about the frequency of hospital contribution into the Medical X-ray Technology program. There was considerable division of perception as to the amount of input from the hospital instructors in the preparation of final college examinations, as shown in item one. In item two, the hospital instructors were perceived to "sometimes" give input to the course content for the college portion of the program. However, as is to be expected by the size and complexity of the X-ray equipment, seldom is equipment transferred from the hospital to the college for teaching experience, as noted in item three. Item four noted that seldom do hospital instructors actively teach in the college portion of the program, and as well, in item five it was noted that the hospital instructors are not involved in inservice training programs for professional development

TABLE 16

COLLEGE CONTRIBUTION DIMENSION SCORES
QUALITY SCALE--MEDICAL X-RAY TECHNOLOGY PROGRAM

Item	Quality[1] 1	2	3	4	5	N[2]	Mean
In general, how well does the theoretical knowledge presented in the first year relate to the practical application of that knowledge during the clinical year. Relationship is	0	2	7	12	2	23	3.61
To what extent are the laboratory procedures as taught during the theoretical year relevant to the practical procedures of the clinical year. Relevancy is	0	3	4	13	2	22	3.63
When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college). Speed of communication from college to hospital is	0	4	6	10	2	20	3.30

[1] The scale used for these items was: 1=very poor; 2=poor; 3=fair; 4=good; 5=excellent

[2] Where "n" is not equal to 26, the difference is equal to the number of respondents who did not answer that question.

TABLE 17

HOSPITAL CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--MEDICAL X-RAY TECHNOLOGY PROGRAM

Item	Frequency[1]					N[3]	Mean
	1	2	3	4	5		
In preparation of final college examinations assistance is received from the hospital instructors	6	4	0	4	8	22	3.18
In the determination of the course content for the college portion of the program input is received from the hospital instructors	1	3	7	5	5	21	3.48
How frequently is equipment provided by the hospital for the college components of the program	2	12	6	1	0	21	2.29
In general, how often do hospital instructors actively teach in the college portion of the program	3	12	7	1	0	23	2.26
How frequently do hospital instructors participate in in-service programs or professional development activities at the college	5	11	3	2	0	21	2.09
In general, how often are hospital visits held during the first year of the program	9[2]	11	1	0	0	21	1.62

[1] The scale used for these items was: 1=never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for this item was: 1=Never; 2=1 or 2 times per year; 3=3 or 4 times per year; 4=5 or 6 times per year; 5=7 or more times per year.

[3] Where "n" is not equal to 26, the difference is equal to the number of respondents who did not answer that question.

at the college. In item six, in which the respondents stated that few hospital visits are given to the students during the first year of the program.

Integration of Hospital - Quality Scale

Quality of the hospital contribution activities are presented in Table 18. The item relating to quality of the hospital visitation during the first year was rated between "poor" and "fair" on the five-point scale. The second item, related to speed of communication from the college to the hospital, was rated between "fair" and "good".

Mutual (Or Two-Way) Integration - Frequency Scale

The mutual contribution scores as shown in Table 19 are designed to reflect the perceptions of the respondents as to the frequency of integration activities between each linkage of the medical x-ray program. The first two of the three items in the table, concerning the frequency of communication between two levels of program personnel, were rated as either a "4" or a "5" on the five-point scale, although some of the respondents indicated that "sometimes" there was mutual communication between the two levels of program personnel. The perceptions on the degree of consultation on student selection varied between "never" and "rarely", although two of the 26 respondents suggested the frequency was "sometimes". This result is not surprising to the researcher since it is noted that the hospitals are the program

TABLE 18

HOSPITAL CONTRIBUTION DIMENSION SCORES
QUALITY SCALE--MEDICAL X-RAY TECHNOLOGY PROGRAM

Item	Quality[1]					N[2]	Mean
	1	2	3	4	5		
During the first year of the program how adequate are the planned hospital visits in reinforcing the theoretical learnings of the first year. Adequacy is	4	7	4	1	0	16	2.13
When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college) Speed of communication from hospital to college is	1	3	8	8	1	21	3.24

[1] The scale used for these items was: 1=Very Poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[2] Where "n" is not equal to 26, the difference is equal to the number of respondents who did not answer that question.

TABLE 19

MUTUAL CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--X-RAY TECHNOLOGY PROGRAM

Item	Frequency[1]					N[2]	Mean
	1	2	3	4	5		
The college program head and the hospital student coordinator (instructor) communicate (other than at committee meetings)	0	0	4	3	12	19	4.42
College/hospital instructional staff communicate (other than at committee meetings)	0	1	6	3	11	21	4.14
How much consultation is there between the college and hospital staff in the selection of students for the program. Consultation occurs	9	10	2	0	0	21	1.67

[1] The scale used for these items was: 1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] Where "n" is not equal to 26, the difference is equal to the number of respondents who did not answer that question.

participants that are responsible for the selection of students into the two year program.

Mutual (Or Two-Way) Integration - Quality Scale

Table 20 reflects the data given by the respondents in the Medical X-ray Technology Program concerning the quality of the mutual integration activities. All four of the items in the scale received a modal score of "4" or "good" on the five-point scale. Only the first two items, the first of which reflected effectiveness of maximum utilization of resources, and the second reflecting adequacy of lines of communication in assisting the overall program received scores in the "2" or "poor" category.

Effectiveness

The research findings on effectiveness were limited to the completion rates of the medical x-ray technology program in the 1982-83 school year. As shown in Table 21, 56 full-time students had enrolled in the second year after 57 had begun the first year of training. Of these 56 students 55 were deemed to have graduated from the program. The term graduated refers to those students eligible to challenge the national examinations. There were no part-time students in the program this year. The completion rate, therefore, is 96%.

TABLE 20

MUTUAL CONTRIBUTION DIMENSION SCORES QUALITY SCALE--MEDICAL X-RAY TECHNOLOGY PROGRAM

Item	Quality[1]					N[2]	Mean
	1	2	3	4	5		
How effective is the present college/hospital relationship in permitting maximum utilization of available resources (people, time, money, etc.) from the various participants of the program. Effectiveness is	0	3	5	11	3	22	3.64
How adequate are the lines of communication between the college and hospital in assisting the overall program to keep current with the latest developments. Adequacy is	0	4	4	11	3	22	3.60
From time to time program related problems arise which require some kind of joint problem solving between the college and hospital in coping with program related problems as they arise. Adequacy is	0	0	4	17	1	22	3.86
In general, how would you rate the integration of the hospital and college components of the program. Integration is	0	0	7	16	1	24	3.75

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[1] The scale used for these items was: 1=Very Poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[2] Where "n" is not equal to 26, the difference is equal to the number of respondents who did not answer that question.

TABLE 21

COMPLETION RATES FOR THE MEDICAL X-RAY TECHNOLOGY PROGRAM

Academic Year	1981-82 (First Year)	1982-83 (Second Year)	
Quota	60	60	
Enrollment (First Year)	Ft 57	Ft 56	Pt 0
Graduates	56	55	0
Rate of Completion		96%	

Summary

The Medical X-ray Technology program was investigated using the same linkage dimensions and indicators as developed for the other two programs included in this study.

The data indicated the linkage dimension of formalization was relatively low, since there is no formal agreement between the hospitals and N.A.I.T. The degree of coordination was given a "4" on the five point scale, as the senior administration personnel who were interviewed stated the program head at N.A.I.T. was the overall coordinator of the program. The liaison committee and advisory committee terms of reference, as well as the coordination procedures, were considered to be clearly written and generally understood.

The intensity of the relationship, as measured by the frequency of interaction between the linkages and relative resource commitment of the college and the hospital was relatively high, with only the hospitals not having a large resource commitment into the training program. One of the interviewees suggested that this was due to the fact that the hospitals allowed these students to work on and train with the equipment which was purchased for patient service, and therefore, little or no equipment was dedicated to specific training purposes for the students in the hospitals.

The reciprocity of the relationship was relatively low with the resource reciprocity low and the advisory committee terms of reference (under definitional reciprocity) low as well. Only the liaison committee terms of reference and their mutual agreement thereupon were considered to be high, while the coordination procedures were "generally agreed upon."

The findings associated with program integration indicated that there were two distinct phases to the program. The didactic component was taught at N.A.I.T. and the clinical experience was provided at the hospitals. There was little or no exchange of instructional staff among the organizations involved, and no exchange of equipment. The hospital visitations occurred infrequently during the first year of the program. The curriculum relevancy to the clinical year and quality of activities at the college were perceived to be "fair". Specific communication among the program constituents appeared to be "good" on curriculum activities and related development. Final student selection was identified to be the sole domain of the hospitals. Mutual integration was perceived to be generally good among the constituents of the program.

Completion rates for the medical x-ray technology program indicated that the graduating class of 1983 had 57 students enrolled in 1981. By the end of the two year program, 96% (55 of 57) students had graduated from this program.

Health Records Technology Program

The Health Records Technology Program is designed to train the student to assist the physician in analyzing health records and utilizing these data for patient care research, planning and education. In Alberta, the central school for this training program is the Northern Alberta Institute of Technology, and is affiliated with over 15 major and smaller hospitals throughout the province. The first year of the two-year training program consists of nine months training at N.A.I.T., followed by two months of practical training in small hospitals throughout Alberta. The second year consists of six months training at N.A.I.T., followed by three months practicum training in a teaching hospital in Alberta. There are 16 students accepted into this program each year, and the pre-requisites for acceptance are a high school certificate, with English 30, plus four subjects of

Math 30 or 33 or 31, Biology 30, Chemistry 30, Physics 30, Social Studies 30 or Language 30 (other than English). The overall average required in these subjects is 60%, with no subject having a grade less than 50%. A grade 10 typing certificate is also required. Upon successful completion of the two year program, the graduate is eligible to challenge the certificate level examination set by the Canadian College of Health Record Administrators.

Interorganizational Variables

Formalization of the relationship. On the linkage dimension "formalization" as indicated by the existence of formal contracts or agreements between the conjoint program parties, the Health Records Technology program appeared to be tacit and informal, as no formalization of the relationship between the program participants had occurred in terms of a contract or agreement. As a result of these data, this linkage dimension was scored as "1" or "informal" (see Table 22).

The second indicator of formalization was measured by the existence of a named coordinator who has other responsibilities, and those interviewed stated that the N.A.I.T. program head was the recognized program coordinator. This was scored as "4", to indicate the existence of a recognized program coordinator.

The third indicator of formalization was the procedural standardization of liaison and advisory committee terms of

TABLE 22

PROFILE OF LINKAGE DIMENSIONS FOUND IN THE HEALTH RECORDS TECHNOLOGY PROGRAM

Linkage Dimension	1[1]	2	3	4	5
A. Formalization of the relationship					
a) Formal agreement (informal... written)	X				
b) Coordination (informal coordinator... formal)				X	
c) Procedural standardization (low...high)					
i) Liaison committee terms of reference	X				
ii) Advisory committee terms of reference			X		
iii) Coordination procedures	X				
B. Intensity of the Relationship					
a) Frequency of interaction (low...high)					
i) Liaison committee meetings		X			
b) Relative resource commitment (low...high)					
i) College					X
ii) Hospitals			X		
C. Reciprocity of the Relationship					
a) Resource reciprocity (low...high)	X				
b) Definitional reciprocity (unilateral...mutual)					
i) Liaison committee terms of reference	X				
ii) Advisory committee terms of reference	X				
iii) Coordination procedures	X				

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[1] Each indicator was rated in accordance with a scale that ranged from one to five. The basis for this scale is shown in parentheses following each indicator (e.g., informal (1)... written and formalized (5).

reference, and the existence of formal coordination procedures. Following data collection, it was found that the Advisory Committee met annually and the terms of reference were of the informal nature. Little documentation appeared to exist on aspects of formalized liaison committee activities and coordination procedures - these activities appeared to be on an 'ad hoc' basis. As a result, these two indicators were rated as "1" or "informal" on the five-point scale (see Table 22).

The second research variable investigated was the intensity of the relationship as measured by the frequency of interaction and relative resource commitment of the participating institutions. The frequency of interaction was measured by the number of regularly scheduled meetings of the college/hospital liaison committee, or the preceptors committee. The interview data revealed that the preceptors committee met two times per year, hence the frequency of interaction was measured as "2" on the five-point scale, corresponding to "1-2 meetings per year". The second indication of interaction, the relative resource commitment, allowed the researcher to ascertain the financial commitment of the college and the hospitals to the training program. The college has three full-time staff and a capital inventory in excess of $140,000 dedicated to the training program. This was scored as "5" or high on the scale of resource commitment. There was some difficulty with data analysis of the hospital resource commitment as the hospital preceptors were salaried hospital employees with the major focus of their commitment being their hospital responsibilities. However, all participating hospitals provided a monthly stipend of $450 per student, and money was available to a very limited extent for education. These indicators were used to score the hospitals' resource commitment at "3" or "available from departmental sources."

Reciprocity of the relationship. The third linkage dimension in the program was the reciprocity of the relationship as measured by examining the degree to which the resources were shared or exchanged among program constituents. The data revealed that little or no exchange occurred on a regular basis, and this indicator was scored as "1" or "low" on the five-point scale. The second measure of reciprocity was the definitional reciprocity, which examined the degree to which the terms of the interaction were mutually agreed upon. As explained earlier, very few written documents existed that related to coordination and integration, hence the only indicator of definitional reciprocity that could be examined were the terms of reference of the N.A.I.T. advisory committee. Since these terms of reference were fixed by N.A.I.T. administration policy, the mutuality of agreement was "1" or "low."

Integration by the College - Frequency Scale

The Health Records Technology program questionnaires showed a markedly similar response in five of the six categories measuring the perceptions of the college activities (see Table 23). For five of the six items measured, all responses were indicative of little or no college intervention in the clinical training portion of the program.

It was noted that in only item two, which questioned the perception of college input into the hospital portion of the program, was there any notable change in the direction of the scoring. For this item, the modal response was at the "5" point level on the five-point scale, indicating that the college instructors did have input into the hospital portion of the program "often" or "frequently".

Integration by the College - Quality Scale

For the first of the three items in Table 24, which relate to curriculum activities of the first year and ask the respondents to relate to the practical application of that knowledge during the clinical year, the respondents noted that the quality was "fair" to "good". For the second item, however, which asked the respondents to indicate their perception of the relevancy of laboratory procedures of year two, the responses were at the lower end of the five-point scale, with three of the respondents suggesting that the relevancy was very poor, two suggesting they were poor, and

TABLE 23

COLLEGE CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--HEALTH RECORDS TECHNOLOGY PROGRAM

Item	Frequency[1]					N[3]	Mean
	1	2	3	4	5		
In preparation of final hospital examinations assistance is received from the college instructors	5	0	0	1	0	6	1.50
In the determination of the course content for the hospital portion of the program input is received from the college instructors	1	1✓	2	4	10	18	4.16
How frequently is equipment provided by the college for the hospital components of the program	16	1	1	0	0	18	1.17
In general, how often do college instructors actively teach in the hospital portion of the program	18	0	0	0	0	18	1.00
How frequently do college instructors visit the hospital on a regular basis for the purpose of gaining clinical experience	16	2	0	0	0	18	1.11
How often are classes held at the college during the clinical year for students of participating hospitals	7[2]	0	0	0	2	9	1.89

[1] The scale used for these items was: 1=never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for this item was: 1=Never; 2=1 or 2 times per year; 3=3 or 4 times per year; 4=5 or 6 times per year; 5=7 or more times per year.

[3] Where "n" is not equal to 18, the difference is equal to the number of respondents who did not answer that question.

TABLE 24

COLLEGE CONTRIBUTION DIMENSION SCORES QUALITY SCALE--HEALTH RECORDS TECHNOLOGY PROGRAM

Item	Quality[1]					N[2]	Mean
	1	2	3	4	5		
In general, how well does the theoretical knowledge presented in the first year related to the practical application of that knowledge during the clinical year. Relationship is	2	0	7	8	1	18	3.33
To what extent are the laboratory procedures as taught during the theoretical year relevant to the practical procedures of the clinical year. Relevancy is	3	1	8	4	1	17	2.94
When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college). Speed of communication from college to hospital is	4	5	3	5	1	18	2.67

[1] The scale used for these items was: 1=very poor; 2=poor; 3=fair; 4=good; 5=excellent

[2] Where "n" is not equal to 18, the difference is equal to the number of respondents who did not answer that question.

eight of the 18 respondents felt that the relevancy of the laboratory procedures was fair. In the final item on this quality scale, of the 18 respondent who were asked to give their perceptions on the speed of communication from the college to the hospital, four respondents found these avenues of communication very poor, five found it poor and three found these communications to be fair. The average response was between "poor" and "fair".

Integration of the Hospital - Frequency Scale

The hospital contribution frequency scale for the Health Records Technology program was administered to the respondents using the format as illustrated in Table 25. In item one it was noted that the final college examination received virtually no input from the hospital instructors. However, item two pointed out the hospital instructors did have input into the course content for the college portion of the program. As identified by item three, there is little or no equipment sharing by the hospital for the college program, as perceived by the respondents to the questionnaire. As well, there is no input or rarely any input by the hospital instructors in actively teaching in the college portion of the program. The hospital instructors do not participate in inservice programs or professional development activities at the college, and the last item on the frequency scale noted that the students visited the hospital facilities three to four times per year.

TABLE 25

HOSPITAL CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--HEALTH RECORDS TECHNOLOGY PROGRAM

	Frequency[1]						
Item	1	2	3	4	5	N[3]	Mean
In preparation of final hospital examinations assistance is received from the hospital instructors	11	4	0	1	2	18	1.83
In the determination of the course content for the college portion of the program input is received from the hospital instructors	5	1	4	4	4	18	3.05
How frequently is equipment provided by the hospital for the college components of the program	8	3	1	5	1	18	2.33
In general, how often do hospital instructors actively teach in the college portion of the program	9	6	1	0	1	17	1.70
How frequently do hospital instructors participate in in-service programs or professional development activities at the college	10	6	1	0	0	17	1.47
In general, how often are hospital visits held during the first year of the program	2[2]	8	0	1	7	18	3.17

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[1] The scale used for these items was: 1=never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for this item was: 1=Never; 2=1 or 2 times per year; 3=3 or 4 times per year; 4=5 or 6 times per year; 5=7 or more times per year.

[3] Where "n" is not equal to 18, the difference is equal to the number of respondents who did not answer that question.

Integration by Hospital - Quality Score

Table 26 presents the findings for the Health Records Technology program perceptions in the quality of the hospital contribution into the program. Reinforcement of the theoretical learning by the hospital visits, as indicated by the mean score was between "poor" and "fair". A similar pattern for communication from the hospital to the college emerged in the second item with the mean response to the respondents' perceptions in the range of "poor" to "fair".

Mutual Integration - Frequency Scale

Table 27 reflects the responses on mutual contributions by the program participants from the questionnaire distributed to the Health Records Technology personnel. Item one, reflecting communication (other than that of committee meetings) between the program head and the hospital student coordinator (practicum supervisor), indicates a wide variance of perceptions as to the frequency of communication, although the average response is "sometimes". Communication between the college and hospital instructional staff (other than committee meetings), as noted in item two, was perceived to be lower than the previous item, with the responses varying greatly, with the mean being 2.47 or above "rarely" on the rating scale. The third item concerning degree of consultation on student selection was rated as "never" or "rarely". This reflects the responsibility of the college

TABLE 26

HOSPITAL CONTRIBUTION DIMENSION SCORES QUALITY SCALE--HEALTH RECORDS TECHNOLOGY PROGRAM

Item	Quality[1]					N[2]	Mean
	1	2	3	4	5		
During the first year of the program how adequate are the planned hospital visits in reinforcing the theoretical learnings of the first year. Adequacy is	4	2	4	3	3	16	2.94
When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college) Speed of communication from hospital to college is	4	3	2	5	1	15	2.73

[1] The scale used for these items was: 1=Very Poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[2] Where "n" is not equal to 18, the difference is equal to the number of respondents who did not answer that question.

TABLE 27

MUTUAL CONTRIBUTION DIMENSION SCORES FREQUENCY SCALE--MEDICAL HEALTH RECORDS TECHNOLOGY PROGRAM

Item	Frequency[1] 1	2	3	4	5	N[2]	Mean
The college program head and the hospital student coordinator (instructor) communicate (other than at committee meetings)	2	5	3	1	5	16	3.12
College/hospital instructional staff communicate (other than at committee meetings)	5	3	3	3	1	15	2.47
How much consultation is there between the college and hospital staff in the selection of students for the program. Consultation occurs	14	4	0	0	0	18	1.22

[1] The scale used for these items was: 1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] Where "n" is not equal to 18, the difference is equal to the number of respondents who did not answer that question.

coordinator to select all students into the two year program.

Mutual Integration - Quality Scale

Data concerning the quality of the mutual integration activities for the Health Records Technology program is presented in Table 28. The first item, reflecting effectiveness in permitting maximum utilization of available resources, had a mean score of "3" or "fair", although eight of the 18 respondents suggested the quality was "good". In the following two items, the respondents were asked to rate the adequacy of both the lines of communication in assisting the overall program to keep current with the latest developments and the relationship between the college and the hospital in coping with program related problems as they arise. Scoring in each of the five quality scales indicated that the mean score of "3" or "fair" on the five-point scale was received by these two items. The last item, considered to be an overall indicator of program integration, was perceived by the respondents and varying from "1" or "very poor" to "5" or "excellent", with the mean score of "3", or "fair".

Effectiveness

The measurement of effectiveness used for this study of the Health Records Technology program was the completion rate of students registered in the program. The available data (see Table 29) indicated that 15 students were enrolled

TABLE 28

MUTUAL CONTRIBUTION DIMENSION SCORES
QUALITY SCALE--MEDICAL HEALTH RECORDS TECHNOLOGY PROGRAM

Item	Quality[1]					N[2]	Mean
	1	2	3	4	5		
How effective is the present college/hospital relationship in permitting maximum utilization of available resources (people, time, money, etc.) from the various participants of the program. Effectiveness is	3	1	3	8	0	15	3.07
How adequate are the lines of communication between the college and hospital in assisting the overall program to keep current with the latest developments. Adequacy is	4	2	3	6	3	18	3.11
From time to time program related problems arise which require some kind of joint problem solving between the college and hospital in coping with program related problems as they arise. Adequacy is	3	2	5	4	2	16	3.00
In general, how would you rate the integration of the hospital and college components of the program. Integration is	2	2	5	7	2	18	3.28

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[1] The scale used for these items was: 1=Very Poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[2] Where "n" is not equal to 18, the difference is equal to the number of respondents who did not answer that question.

TABLE 29

COMPLETION RATE
HEALTH RECORDS TECHNOLOGY PROGRAM

Academic Year	1981-82		1982-83	
Quota	16		16	
Enrollment	FT	PT	FT	PT
	15	0	14	0
Graduates	14	0	12	0
Rate of completion	86%			

in the first year of the program during the 1981-82 academic year, and 14 completed the first year of training. Of the 14 who enrolled in the second year 12 graduated from this two year technology program. The completion rate, therefore, is 86%.

Summary

In the case of the Health Records Technology program the formalization of the relationship was found to be relatively low, with few written agreements and signed documents required for the formal operation of this program.

The coordination of the program was high, as the N.A.I.T. program head is perceived to be the sole administrator responsible for student training. The procedural standardization items were perceived to be relatively low, as the terms of reference and coordination procedures are relatively informal.

The intensity of the relationship varied between high and low, due to the structure and organization of the program.

The resource reciprocity, as well as the definitional reciprocity was scored as low, as the data revealed that little or no exchange of resource occurred among program participants. However, the interviewees perceived that this was partly due to a lack of need for exchange. The liaison committee terms of reference, coordination procedures and advisory committee terms of reference were measured as low on the scale measuring definitional reciprocity, primarily because of the lack of written coordination procedures or documentation.

The findings on the degree of integration showed that the clinical and theoretical aspects of the program were relatively distinct from each other. Very little inter-agency visitation of faculty occurred, and no equipment was shared between program constituents. Communication on course content by the hospital staff to the college was high, but the relevancy of the theoretical portion of the training was perceived to be "poor" to "fair." The mutual or two-way integration variables appeared to be higher than either the college or hospital contributions to integration.

The effectiveness of the program, as measured by the completion rates for 1983, indicated that 86% of the students were successful in this program.

The next chapter presents a comparative analysis of the three programs on the research variables examined, and reviews the descriptive data in terms of the three subproblems addressed in Chapter 1.

CHAPTER 5

A COMPARATIVE ANALYSIS OF THE PROGRAMS STUDIED

Three allied health joint cooperative programs were examined in order to investigate the possible relationships between linkage dimensions, the degree of integration and the overall effectiveness of the program. Chapter 4 presented the individual findings for each program studied, and thus addressed sub-problem one. Chapter 5 presents the findings for sub-problems two and three, and is organized into four sections: the first presents a comparison of all linkage characteristics, the second section compares the findings on integration, the third section presents a comparison of program effectiveness, and the fourth section examines relationships between these variables.

Linkage Characteristics

The linkage dimensions of formalization, intensity and reciprocity of the relationships were examined by plotting the data from the linkage profile table for each program onto a single table in order to permit comparative analysis of the linkage profiles for the three joint cooperative programs. Table 30 illustrates the results of this effort.

Formalization

In comparing the contractual agreements between the institutions, both of the programs at the Northern Alberta

TABLE 30

SUMMARY OF LINKAGE DIMENSIONS FOUND IN THE THREE PROGRAMS

Linkage Dimension	1*	2	3	4	5
A. Formalization of the Relationship					
a) Formal agreement (informal... written)	X,H				A
b) Coordination (informal... formal coordination)				H,X	A
c) Procedural standardization (low...high)					
i) Liaison committee terms of reference	A,H				X
ii) Advisory committee terms of reference			X,H		A
iii) Coordination procedures	H		A,X		
B. Intensity of the Relationship					
a) Frequency of interaction (low...high)					
i) Liaison committee meetings	A	H		X	
b) Relative resource commitment (low...high)					
i) College				A,X,H	
ii) Hospitals	A		H	X	
C. Reciprocity of the Relationship					
a) Resource reciprocity (low...high)	A,X,H				
b) Definitional reciprocity (unilateral...mutual)					
i) Liaison committee terms of reference	A,H				X
ii) Advisory committee terms of reference	A,X,H				
iii) Coordination procedures	A,H		X		

*Each indicator was rated in accordance with a scale that ranged from 1 to 5. The basis for this scale is shown in parentheses following each indicator (e.g., informal (1)... written (5)).

"A" represents the Registered Nursing Assistant program.
"X" represents the Medical X-ray technology program.
"H" represents the Health Records technology program.

Institute of Technology appeared to be tacit and informal, relying on the mutual interaction of the hospital and institute staff of the X-ray and Health Records technologies to perpetuate the conjoint relationship. In contrast, the Nursing Assistant program has established formal agreements with each affiliated hospital in the program. These agreements outline the basis of the relationships, the financial arrangements of the relationship, and the responsibilities of hospital and institute staff as well as issues such as student responsibilities and liability insurance. However, the degree of coordination was considered high among all three programs, as the educational institutes all had a full time program head or program coordinator who is responsible for coordinating the various components of the program. This was particularly evident in the R.N.A. program, where the program head is responsible for the students' clinical experience at the hospital. For the Health Record and X-ray programs, this responsibility was shared by the program head and appropriate hospital personnel. The procedural standardizations were considered to be variable, as most procedures, committee terms of reference and responsibilities, and interorganizational activities were reasonably well documented, while others such as the liaison committee terms of reference were non-existent in the R.N.A. and Health Records programs.

Intensity

The research variable "intensity" revealed that the frequency of interaction varied widely among the three programs. The Registered Nursing Assistant program coordinator seldom met formally with the hospital staff because routine planning communication was accomplished via informal methods. The Health Records program had a preceptors' meeting twice during the academic year, at which all participating organizations were represented. The Medical X-ray technology program had an "education committee" which met 4-6 times per year, with more meetings scheduled if required.

The second indicator of intensity (the relative resource commitment of each organization) revealed a dissimilar situation. The relative resource commitment of the colleges was high among all programs included in the study. All provided adequate classroom and laboratory space, a wide variety of related equipment for the students' laboratory experience, and at least three full time faculty members and a specific budget for program supplies. Conversely, however, the relative resource commitment of the affiliated hospitals varied widely for each program included in the study. The Medical X-ray technology department in each hospital affiliated with the programs provided a full time instructor, paid any associated educational expenses for the instructor, and paid the students a stipend of $450 per month while they were completing their clinical experiences. The affiliated hospitals of the Health Records technology program had a hospital "preceptor" who was responsible for guiding the student through the clinical experience. This preceptor was usually a supervisor or senior department staff member, whose position description included the responsibility of training students. The resource commitment was scored as "moderate". The resource commitment of the affiliated hospitals in the R.N.A. program was considerably different than the other two programs; the hospitals had very little resource commitment involved with the program. The Alberta Vocational Centre paid all the costs related to the students' clinical experience at the affiliated hospitals, as well as providing the nursing staff who would coordinate the students' experience at each hospital. In fact, other than allowing the students to use their facilities and interact with their patients and staff the affiliated hospitals did not pay any of the expenses related to the education of the students in this joint cooperative program.

Reciprocity

The two indicators of the reciprocity dimension were the exchange or sharing of resources (resource reciprocity) and the mutual decision making agreements between the joint cooperative program members (definitional reciprocity). The research variable of resource reciprocity indicated that the degree of resource exchange was low or non-existent in all three programs, due mostly to the lack of perceived need for such exchange or inappropriateness of the exchange. Examples of each of these situations are the Health Records technology program, whose staff felt there was little need to exchange physical resources, and the X-ray technology program, where exchange of equipment was functionally impossible due to size and complexity.

The definitional reciprocity of the relationship, which examined the degree to which the terms of the interactions are mutually agreed upon, was non-existent or unilateral in both the R.N.A. program and the Health Records technology program. The only example of written procedures that could be examined were the terms of reference for the program advisory committees, and in all three programs the documents were drafted unilaterally by the educational institution. The Medical X-ray technology program had the highest degree of definitional reciprocity in their liaison or "education" committee, in which there had been considerable mutual agreement on the terms of reference between the participating institutions.

Degree of Program Integration

In order to compare the three programs on the degree of integration, questionnaire items on the college/hospital contribution and mutual or two-way integration were analyzed for variance, and the results presented in the following three tables.

College Contribution to Integration

Table 31 presents the findings on the 9-item comparative analysis of the college contribution dimension. All items showed at least one significant difference at the 0.05 level, and four items showed significant difference between all the programs. In the first item the R.N.A. respondents perceived a higher level of institution input into the hospital examination than did the X-ray respondents, who in turn perceived a higher level of educational institution input into hospital examinations than did the Health Record technology respondents. These findings corroborate the evidence obtained during data collection which described the R.N.A. program as being directed exclusively by the institution staff members; therefore the hospital examinations would be prepared exclusively by the college instructors, who are in fact the only salaried instructors who are in contact with the students both in the educational institution and in the hospital. The X-ray respondents showed less input from the institution staff to the hospital examinations; some input is provided, however, since N.A.I.T. faculty are members of the Education Committee. The R.N.A. program respondents indicated that the college instructor "rarely" had input into hospital examinations; this is indicative of the policy that other than assignments given by the preceptors, there are no hospital examinations given to the students.

TABLE 31

COMPARATIVE ANALYSIS OF THE COLLEGE CONTRIBUTION DIMENSION

	Program N	R.N.A. 15	X-Ray 26	Health Records 18	F[5]	Scheffé[4] P≤ .10
In the preparation of final hospital exams assistance is received from the college instructors:	$\bar{X}$	4.85[1]	3.95	1.50		2-3, 1-3,
	SD	0.38	0.86	1.22	35.42**	1-2
In the determination of the course content for the hospital portion of the program input is received from the college instructors:	$\bar{X}$	4.73[1]	3.75	4.16		
	SD	0.46	1.12	1.20	4.05*	1-2
How frequently is equipment provided by the college for the hospital components of the program?	$\bar{X}$	2.93[1]	2.00	1.16		2-3, 1-3,
	SD	1.44	1.11	0.51	11.18**	1-2
In general, how often do college instructors actively teach in the hospital portion of the program?	$\bar{X}$	4.87[1]	1.96	1.00		2-3, 1-3,
	SD	0.35	0.88	0.00	185.78**	1-2
How frequently do college instructors visit the hospital on a regular basis for the purpose of gaining clinical experience?	$\bar{X}$	4.13[2]	1.68	1.11		1-3,
	SD	1.55	0.71	0.32	46.76**	1-2
In general, how well does the theoretical knowledge presented in the first year relate to the practical application of that knowledge during the clinical year? Relationship is:	$\bar{X}$	4.60[3]	3.61	3.33		1-3,
	SD	0.51	0.78	1.03	10.84**	1-2
To what extent are the laboratory procedures as taught during the first year relevant to the practical procedures of year two? Relevancy is:	$\bar{X}$	4.33[3]	3.63	2.94		2-3, 1-3,
	SD	0.49	0.85	1.14	10.02**	1-2
How often are classes held at the college during the clinical year for students of participating hospitals?	$\bar{X}$	3.77[2]	3.76	1.88		
	SD	1.92	0.94	1.76	4.46*	1-3
When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college)? Speed of communication from the college to the hospital is:	$\bar{X}$	4.20[3]	3.30	2.66		1-3
	SD	0.77	0.80	1.28	9.92**	1-2

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[1] The scale used for these items was: 1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for these items was: 1=Never; 2=1 or 2 times/year; 3=3-4 times/year; 4=5-6 times/year; 5=7 or more times/year.

[3] The scale used for these items was: 1=Very poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[4] In the ANOVA results, the numeral 1 denotes R.N.A.; the numeral 2 denotes X-Ray and the numeral 3 denotes Health Records.

[5] For the F test, * indicates f ratio <.05 and ** indicates f ratio <.01.

In item 2 on Table 31, the R.N.A. program respondents rated significantly higher in the college input to the hospital portion of the program than did the X-ray respondents. These findings illustrate the difference in structures of the two programs; the R.N.A. program is designed exclusively by the A.V.C. faculty and advisors in both the didactic and clinical setting, while the X-ray program has these components as two very distinct entities.

Item 3 reflected a significant difference between all programs in the perception of the respondents on equipment loaned to the hospital by the college. However, the low modal score for this item would infer that rarely is equipment loaned at all between the training centres in any of these programs.

Item 4 investigated the frequency of staff interaction from the college into the hospital portion of the program, and significant differences were again noted between each program. The R.N.A. faculty are in fact the hospital faculty, and the findings corroborate this information. As well, the separation in roles and responsibilities of the hospital and educational institution faculty may explain the low scoring on this item in the X-ray and particularly the Health Records program.

Item 5, which asked the frequency of college staff visiting the hospital to gain clinical experience, was rated as having significant differences between the R.N.A. program and the X-ray and Health Records programs. The structures of the programs may explain this difference in perceptions. The R.N.A. program staff have to attend their students at the hospital, while the X-ray and Health Records institution instructors have only the didactic portion of the program as their responsibility.

The perception of the respondents as to the relationship between theoretical knowledge and practical application of that knowledge was investigated in item 6, which showed that the R.N.A. respondents rated this item higher than did the other two programs in comparison.

Item 7 showed a marked significant difference between the perception of the respondents for each program as to the relevancy in year two of the lab procedures taught during year one. The R.N.A. program respondents perceived a higher level of relevancy than the X-ray respondents who in turn perceived a higher level of relevancy than the Health Record respondents.

Item 8 showed that there were significant differences between the R.N.A. program respondents and the Health Record program respondents. This may reflect the structural difference between the two programs, where there are no classes given at the institute to the student in Health Records technology while those students are in their hospital practicum.

Item 9 queried the speed of communication from the college to the hospital regarding programming changes and the R.N.A. responses were significantly different from the other two programs' responses. The R.N.A. program showed "good" speed of communication, while both the X-ray and Health Records programs had a modal response of "fair".

Hospital Contribution to Integration

Table 32 presents the findings on the 8-item comparative analysis of the hospital contribution dimension. In only two of the eight items were no significant differences noted, and each of the eight items will be discussed individually.

The responses to item 1, which measured hospital input into college examination preparation, showed significant differences between all three programs. The mean scores suggest that in the R.N.A. program this frequently occurs, and since the hospital and college faculty are one and the same, this scoring seems understandable.

The scores of the other two programs seem to reflect the degree of separation between the hospital and N.A.I.T. faculties; there is "sometimes" assistance to the college by hospital staff in the X-ray program, and "never" any assistance given by the hospital staff to the college staff. The interview data suggested that the structuring of the programs, rather than faculty reticence, was responsible for this perception.

Item 2 responses again illustrated the structure of the X-ray and Health Records program in relation to the R.N.A. program. The respondents perceived that some interaction did take place in the former programs, while the latter

TABLE 32

COMPARATIVE ANALYSIS OF THE HOSPITAL CONTRIBUTION DIMENSION

	Program N	R.N.A. 15	X-Ray 26	Health Records 18	F[5]	Scheffé[4] $P \leq .10$
In the preparation of final college examinations assistance is received from the hospital instructors:	$\bar{X}$	4.53[1]	3.18	1.83		2-3, 1-3,
	SD	1.06	1.73	1.38	13.95**	1-2
In the determination of the course content for the college portion of the program input is received from the hospital instructors:	$\bar{X}$	4.40[1]	3.47	3.05		
	SD	1.12	1.16	1.55	4.54*	1-3
How frequently is equipment provided by the hospital for the college components of the program?	$\bar{X}$	1.86[1]	2.28	2.33		
	SD	1.41	0.71	1.45	0.73	N.S.
In general, how often do hospital instructors actively teach in the college portion of the program?	$\bar{X}$	4.13[1]	2.26	1.71		1-3,
	SD	1.30	0.75	1.05	24.94**	1-2
How frequently do hospital instructors participate in inservice programs or professional development activities at the college?	$\bar{X}$	2.33[1]	2.09	1.47		2-3,
	SD	1.05	0.89	0.62	4.38*	1-3
In general, how often are hospital visists held during the first year of the program?	$\bar{X}$	4.13[2]	1.62	3.16		3-2,
	SD	1.55	0.59	1.62	17.47**	1-2
During the first year of the program how adequate are the planned hospital visits in reinforcing the theoretical learnings of the first year? Adequacy is:	$\bar{X}$	4.43[3]	2.13	2.94		1-2,
	SD	0.76	0.89	1.48	16.61**	1-3
When changes are made to the routines, procedures or equipment in one part of the program (college of hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college)? Speed of communication from the hospital to the college is:	$\bar{X}$	3.60[3]	3.24	2.73		
	SD	1.35	0.94	1.38	1.94	N.S.

[1] The scale used of these items was: 1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for this items was: 1=Never; 2=1 or 2 times/year; 3=3-4 times/year; 4=5-6 times/year; 5=7 or more times/year

[3] The scale used for these items was: 1=Very poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[4] In the ANOVA results, the numeral 1 denotes R.N.A.; the numeral 2 denotes X-Ray and the the numeral 3 denotes Health Records

[5] For the F test, * indicates f ratio < .05 and ** indicates f ratio < .01

responses were indicative of the college/hospital R.N.A. faculty similarity.

Item 3 indicated that seldom was equipment provided by the hospitals for the college components of any of the programs.

The separate clinical/didactic structures of the X-ray and Health Records programs as compared to the R.N.A. program were illustrated in the responses to item 4. The X-ray and Health Records programs seldom have hospital staff teach in the college portion of the program, while the R.N.A. faculty teach both in the institution and in the hospital. This difference in structures was further outlined in the responses to item 5, which indicated that seldom did the hospital staff of any of the programs participate in educational institution inservice or professional development programs.

Item 6 indicated that the X-ray students had the least frequent number of hospital visits compared to the other programs. Item 7, investigating the adequacy of the reinforcement of theoretical training during the hospital visits, was "good" in the R.N.A. program, which was significantly different than both the X-ray and Health Records programs whose adequacy was perceived to be "poor" and "fair" respectively.

The responses to item 8 indicated that no significant deviation existed between any of the programs when the respondents were asked to rate the speed of communication from the hospital to the college. The modal response for this item in all groups was "fair".

Mutual or Two-way Integration

The findings on mutual or two-way integration were tabulated and are presented in Table 33. Seven items constituted the dimension of mutual or two-way integration, and significant differences were noted in six items.

The R.N.A. and X-ray programs were rated as having more frequent hospital-institution meetings than the health records program. The perception of frequency of communication between the college hospital faculty, as measured in item 2, was significantly different between all three programs. Inspection of the means for this item for the programs show the R.N.A. and X-ray were the most similar, whereas the respondents for the Health Records program suggested that the faculties communicated "rarely".

Item 3 showed no significant difference in any of the three programs, indicating that all three programs had little consultation between the joint-cooperative partners while selecting students. This is in keeping with the program documentation, which lists the program head and the registrar as those personnel to whom the students for all three programs must apply.

The R.N.A. respondents, as shown in item 4, perceived a higher level of effectiveness in the college/hospital resource utilization than did the health records program.

TABLE 33

COMPARATIVE ANALYSIS OF THE MUTUAL INTERACTION DIMENSION

	Program N	R.N.A. 15	X-Ray 26	Health Records 18	F[4]	Scheffé[3] $P \leq .10$
The college program head and the hospital student coordinator (instructor) communicate (other than at committee meetings):	$\bar{X}$	5.00[1]	4.42	3.13		2-3,
	SD	0.00	0.84	1.50	14.69**	1-3
College/hospital instructional staff communicate (other than at committee meetings):	$\bar{X}$	5.00[1]	4.14	2.47		2-3, 1-3,
	SD	0.00	1.01	1.36	24.86**	1-2
How much consultation is there between the college and hospital staff in the selection of students for the program? Consultation occurs:	$\bar{X}$	1.53[1]	1.67	1.22	1.27	
	SD	1.41	0.66	0.43		N.S.
How effective is the present college/hospital relationship in permitting maximum utilization of available resources (people, time, money, etc.) from the various participants of the program? Effectiveness is:	$\bar{X}$	4.13[2]	3.64	3.07		
	SD	0.74	0.90	1.22	4.58*	1-3
How adequate are the lines of communication between the college and hospital in assisting the overall program to keep current with the latest developments? Adequacy is:	$\bar{X}$	4.13[2]	3.59	3.11		
	SD	0.99	0.96	1.45	3.23*	1-3
From time to time, program related problems arise which require some kind of joint-problem solving activity. How adequate is the relationship between the college and hospital in coping with program related problems as they arise? Adequacy is:	$\bar{X}$	4.00[2]	3.86	3.00		2-3,
	SD	0.76	0.47	1.32	6.27**	1-3
In general, how would you rate the integration of the hospital and college components of the program? Integration is:	$\bar{X}$	4.27[2]	3.75	3.28		
	SD	0.80	0.53	1.18	5.54**	1-3

[1] The scale used for these items was: 1=Never; 2=Rarely; 3=Sometimes; 4=Often; 5=Frequently

[2] The scale used for these items was: 1=Very poor; 2=Poor; 3=Fair; 4=Good; 5=Excellent

[3] In the ANOVA results, the numeral 1 denotes R.N.A., the numeral 2 denotes the X-Ray and the numeral 3 denotes Health Records

[4] For the F test, * indicates f ratio < .05 and ** indicates f ratio < .01

As well, in item 5 the adequacy of communication between the joint cooperative partners was perceived as being statistically different between the R.N.A. and Health Records programs. No statistically significant difference was observed between the other two programs.

The ability of the program members to cope with program related problems was investigated in item 6, and the respondents in the R.N.A. and X-ray programs scored this item significantly different than the Health Records program. The responses were "fair" to "good". No difference existed between the R.N.A. and X-ray program.

In the final item of Table 33, the overall integration of the hospital and college components was rated by the respondents, and the R.N.A. program showed a statistical difference in the perceived integration of that program as compared to the Health Records program. No differences existed between the R.N.A. and X-ray programs, or the X-ray and the Health Records programs.

Table 34 is presented in an effort to focus the results of Tables 31-34, which compare the college, hospital and structural contributions to integration.

TABLE 34

A COMPARISON OF CONTRIBUTION MEASUREMENTS FOR THREE JOINT COOPERATIVE PROGRAMS

	Educational Institution Contribution	Hospital Contribution	Mutual Contribution
R.N.A. Program	High	High	High
X-ray Program	Medium	Medium	Medium
Health Records Program	Low	Low	Low

A subjective analysis of this Table suggests that the R.N.A. program is more highly integrated than the X-ray and Health Records programs. However, the program descriptions suggest that due to the structure of the R.N.A. program the respondents for the program were mostly based at the A.V.C.-Edmonton, whereas the other two programs had more respondents from the hospitals than from the educational institutions. This may explain the nature of the responses that favor both the institution and the hospital for the R.N.A. program, since the R.N.A. faculty are exclusively responsible for their students in both phases of the program. The integration results for the X-ray program are generally indicative of the perceptions of the respondents from the hospitals and the Northern Alberta Institute of Technology. However, the data from the Health Records technology respondents, as translated on Table 35, would

TABLE 35

SUMMARY OF INTEGRATION COMPARISONS BETWEEN PROGRAMS

	R.N.A. Program		X-ray Program		Health Records Program	
	High Score	Low Score	High Score	Low Score	High Score	Low Score
College Integration (9 items)	16	0	4	8	0	12
Hospital Integration (8 items)	9	0	2	5	1	7
Mutual Integration	7	0	3	1	0	9
TOTAL	32	0	9	14	1	28

indicate that by comparison with the other programs the respondents were in agreement that neither the institute nor the hospitals had much input into the program. No apparent explanation could be suggested to account for this finding.

Summary of Differences

Significant differences were noted on all but three of the 24 integration items, and Table 35 presents a summary of the integration comparisons between the three programs. Each program has been analyzed and scored either high or low depending on the Scheffé test results noted in Tables 31-33. The high score indicates the number of times a program scored higher than either of the other two programs in the comparison of means, while the low score indicates the number of times a program scored lower than either of the other two programs included in the study. From this Table the scoring of the programs indicates that the R.N.A. program appears to be rated highest on the three areas of integration included in the study, while the X-ray program is ranked second and the Health Records program is ranked third. These findings are not inconsistent with the findings on the program respondents and the comparative structure of the three programs as noted earlier.

Program Effectiveness

Information on program effectiveness was gathered by objective measurement using the completion rates of the participants in each program during the 1982-83 school year.

This information was obtained for the Registered Nursing Assistant program from the Registrar's office in the Alberta Vocational Centre-Edmonton, and from the Registrar's office at N.A.I.T. for the X-ray and Health Records technology programs. As well one question on the integration questionnaire addressed the issue of effectiveness (see Table 33, #4).

In order to compare the effectiveness of the three programs, the data on the completion rates were summarized in Table 35. The results of the comparison suggest that the N.A.I.T. X-ray technology program is the most effective of the three programs included in the study. However, the data from Table 33 suggests that the respondents' perception of effectiveness of that program was only "fair", while the R.N.A. program respondents perceived the effectiveness of that program to be "good" and the Health Records effectiveness to be "fair". It would be incorrect to suggest that the cursory analysis of these findings would allow a plausible explanation of overall effectiveness; the completion rates of the students in these programs could be interpreted as a measure of program productivity. However, the nature of the R.N.A. program is such that it attracts students who may be considered "marginal" in terms of their post-secondary educational potential. The fact that 69% complete the program may be consistent with the rating of that effectiveness of the program as "good."

TABLE 35

SUMMARY OF COMPLETION RATES FOR 1982-83

	R.N.A. Program	X-ray Program	Health Records Program
Quota	200	60	16
Enrollments	212	57	15
Graduates	146	55	12
Completion Rate	69%	96%	86%

Summary

This chapter presented a comparative analysis of linkage dimensions, degree of program integration, and program effectiveness for the three programs studied.

The data on the linkage dimensions revealed that the greatest differences in the three programs were in the formalization and intensity of the relationship. The most formal of the three was the R.N.A. program at the Alberta Vocational Center in Edmonton, while the two programs at N.A.I.T. (the X-ray and Health Records programs) exhibited tacit and informal relations. The linkage indicators for assessing intensity revealed that the educational institution participants for all three programs had a high degree of commitment to the program in terms of relative resource commitments. However, the hospitals in the R.N.A. program demontrated a lower degree of relative resource commitment to the program than did the Medical X-ray technology program.

The final linkage dimension examined was concerned with the reciprocity of the relationship and the data indicated that the degree of resource exchange was low among the organizations involved in the joint cooperative programs. The information that was gathered concerning the definitional reciprocity among the organizations, suggested that the Medical X-ray technology program was the only program in which any of the three areas of definitional reciprocity was perceived as mutually agreed upon. In the other two programs, the committees and terms of reference were non-existent, and in the case of the advisory committees the educational institutions were perceived as the originator of all documentation and coordination procedures related to interorganizational activities of these programs, and the definitional reciprocity was therefore low. These findings imply that the power among the organizations involved in the R.N.A. and Health Records programs tends to rest with the educational institutions, whereas with the Medical X-ray program the power tends to be shared more equally between the hospitals and the Northern Alberta Institute of Technology.

The findings on the degree of program integration did identify major differences among the programs studied. Twenty-four items on integration were examined and only three showed no significant differences using the analysis of variance test. The data revealed that the R.N.A. program was consistently rated as the program with the highest integration among the program constituents, with the X-ray program rated significantly lower in relation to the R.N.A. program in 13 of the 24 items. The lowest rating in the integration measurement was given by the respondents to the Health Records Technology, which scored significantly lower than the other to programs in 21 of the 24 categories.

The findings on the completion rates of the three programs which were used as indicators of program effectiveness. These data revealed that the X-ray program had the highest percentage of successful completions, followed by the Health Records technology program and lastly, the R.N.A. program. A hierarchical ordering of the programs in terms of student intake numbers indicates that the R.N.A. program takes in more than 200 students followed by the X-ray program with 60, and the Health Records program with 16. The low scoring of the R.N.A. program in the comparison of the completion rates may be affected by this variable.

The data on the relationships between the variables suggested that of the three programs included in this study, the Medical X-ray program and the Registered Nursing Assistant program each had distinct characteristics that could correspond to one or more of Andrews' five generalizations. However, no single program had characteristics that could correspond to all of the five generalizations, and the Health Records program did not have any characteristics which were consistent with any of the generalizations.

The final chapter provides a summary of the study and its findings, the conclusions to the study and implications and suggestions for further research.

CHAPTER 6

SUMMARY, CONCLUSION, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This chapter is divided into four parts: a summary of the study and its findings, conclusions, implications and suggestions for further research.

Summary of the Study

Purpose of the Study

The major purpose of this study was to investigate the potential relationships that might exist in the linkages that join organizations involved in three selected joint cooperative educational programing. This research was done in order to determine whether Andrews' (1978) propositions hold true for joint cooperative programs other than those in in his study. The five generalizations are:

1. If a joint cooperative program is characterized by a high relative resource commitment, and the resource commitment is symmetrical, then the cooperative program is likely to be characterized by high formalization and definitional reciprocity.
2. If one organization engaged in a joint cooperative program has a high reliatve resource commitment, then the cooperative program is likely to be characterized by high formalization and structural standardization (coordination).

3. If a joint cooperative program demonstrates an asymmetrical relative resource commitment, then the cooperative program is also likely to demonstrate low definitional reciprocity.
4. If a joint cooperative program is characterized by a symmetrical relative resource commitment, and the resource exchange is low, then the cooperative program is likely to be characterized by low formalization and structural standardization (coordination).
5. If a joint cooperative program is characterized by a high degree of agreement formalization, then the cooperative program is likely to be characterized by high structural and procedural standardization.

In order to focus the study, three sub-problems were articulated:

1. For each of the three joint cooperative programs to be investigated, what is the nature of the cooperation between the cooperative members using the following variables: formalization, intensity, reciprocity, integration and effectiveness?
2. What relationships exist between the linkage variables noted above?
3. Are these relationships consistent with Andrews' five generalizations regarding linkage dimensions for allied health joint cooperative programs?

Focus of the Study

The focus of this study was to determine whether the relationships that exist between the allied health joint cooperative programs were consistent with Andrews' five generalizations regarding linkage dimensions for allied health joint cooperative programs. This study was concerned with identifying and investigating interorganizational linkages in three allied health programs sponsored by an educational institute and affiliating hospitals.

Three programs different from those examined by Andrews were chosen for this investigation:

1. the Registered Nursing Assistant Program at Alberta Vocational Centre (Edmonton)
2. the Medical X-ray Technology Program at the Northern Alberta Institute of Technology (Edmonton)
3. the Health Records Technology Program at the Northern Alberta Institute of Technology (Edmonton)

Significance of the Study

The study was justified for the following reasons. First, the relationships that exist between allied health joint cooperative programs appeared to be an important area for further research (Andrews, 1978; Mutema, 1981). Second, no study had specifically tested the generalizations hypothesized by Andrews as they might relate to health science programs other than Respiratory Technology. Third, the logic suggested that the programs included in this study might possibly benefit from the findings of this research.

Conceptual Framework

The conceptual framework for this study was based on the work of Marrett (1971) as developed by Andrews (1978) on interorganizational variables. These variables included the specific linkage dimensions of the degree of formalization of the relationship, the degree of intensity of the relationship, and the reciprocity of the relationship. The impact of these linkage dimensions on the three allied health cooperative programs was assessed by investigating the degree of integration and overall effectiveness of the program. Because the study was exploratory, no research hypotheses were made.

Respondents in the Study

The respondents in the study were all the full time instructional staff as well as the program head at the educational institutions, involved in delivery of the three programs included in this study, and the department head and program instructors or preceptors at the affiliating hospitals.

Instrument Development

The interview guide and survey questionnaire originally designed by Andrews (1978) were modified for use in this study. This was necessary because the original instruments were designed for use only with the Respiratory Technology program investigated in Andrews' study. The survey instrument was designed to investigate the degree of integration among the programs constituents, and had two parts. The first part of the questionnaire contained five items designed to collect demographic data on the respondents. The second part had 24 items that were developed to collect information about the degree of integration between the educational institutions and the hospitals; nine items related to college integration activities, eight items related to hospital integration activities and seven items designed to investigate mutual or "two way" integration activities. The questionnaire was completed by the educational institution faculty members, the hospital instructional staff, and all program and department heads involved with each of the three programs.

The interview guide, as modified from Andrews (1978), was developed in order to gather information on linkage activities. The 17 question guide was used to ensure a degree of similarity in the comments made by the interviewees. At the end of the interview the major comments were discussed with the personnel interviewed in order to ensure that the information recorded was correct. Additional program information, such as the terms of reference for the various committees as well as official descriptions of the programs were requested at the time of the interview. The program quota, intake and completion numbers were obtained from the program directors at the educational institution.

Data Analysis

Data analysis was accomplished by having information from the two part questionnaire data coded onto data processing cards for computer analysis. The demographic and personal variables were coded in accordance with the requirements of the computer program for analysis of these variables.

The data from the integration portion of the questionnaire were submitted to a comparative analysis by using the "F" test, Scheffé procedure, thus allowing examination of differences in perceived integration between programs.

The research findings from the interview guides provided the necessary data to develop a profile for each program on the linkage dimensions of formalization, intensity and reciprocity. These linkage dimension profiles were not subjected to statistical comparisons but were examined carefully to see if differences existed between programs. This allowed the data to be analyzed and discussed in relation to the problem and sub-problems addressed by this study.

The data used to measure program effectiveness were the completion rates of each program compared to the program intake, which were then used to compute a percentage score.

Summary of Research Findings on the Three Programs

The description of each program studied and the major findings for each program are presented in Chapter 4 under the headings of formalization intensity, reciprocity, integration, and effectiveness. A comparative analysis of the three programs is presented in Chapter 5, and the findings are related to linkages, integration, and program effectiveness.

The Registered Nursing Assistant Program

The profile of the linkage dimensions for the Registered Nursing Assistant program revealed a relatively high degree of formalization among the program constituents, and an asymetrical relative resource commitment. The Alberta Vocational Centre provided the major physical and financial resources for the program and there was a low degree of resource and definitional reciprocity, due to the structure of the program.

The findings associated with the degree of program integration suggest that the degree of cooperation was rated from "good" to "excellent" although the interagency visitations and resource exchange were found to be non-existent. The mutual or two way integration measurement appeared to be rated the highest of the three integration variables included in this study based on a comparison of the measures for each of the three variables. The R.N.A. program scored the highest of the three programs in all categories on integration.

The measurement of effectiveness for this study was the completion rate for the programs, and the R.N.A. program had a completion rate of 69%, the lowest of the three programs. However, the item on the integration questionnaire which addressed the perception of the respondents of program effectiveness indicated that the respondents perceived the effectiveness of the R.N.A. program to be "good", the highest score achieved on this item in any of the three programs.

The Medical X-ray Technology Program

The linkage dimension profile for the X-ray technology program revealed that the linkages of the program were characterized by a moderate degree of formalization. There were no formal contracts existing between the Northern Alberta Institute of Technology and the affiliating hospitals, and the relationship was tacit and informal. The perception of the respondents was that the program head at N.A.I.T. was the person responsible for the overall operation of the program, although the major thrust of the program head's responsibility involved only the N.A.I.T. portion of the program. The committee input into this program was found to be important, especially with the mutuality of agreement among the program contituents concerning the committee terms of reference and coordination procedure. The frequency of interaction by the liaison committee members was high, and the relative resource commitment was symmetrical. The resource exchange was low, while the definitional reciprocity varied from low to high.

The findings on the degree of intergration indicate that seldom if ever was there an exchange of instructional staff involved in the program. The students rarely visited the hospitals during the didactic year, and they did not return to N.A.I.T. for classes once they had completed the first year at N.A.I.T. The communication and relationship between the hospitals and N.A.I.T. were rated from "fair" to "good", and there seemed to be little difference between the three principal integration indicators. The survey of the comparisons between programs on terms of integration ranked the X-ray program as lower than the R.N.A. but higher than the Health Records program.

The X-ray technology program had a completion rate of 96%, the highest of the measurements used to assess the effectiveness of the three programs in the study. However, the data from the one indicator used in the questionnaire suggested that the respondents' perception of the effectiveness of the program was only "fair".

The Health Records Technology Program

The linkage dimension profile for the Health Records technology indicated that the formalization of the program was low, with no formal contracts existing between the organizations involved, and the entire relationship being tacit and informal. The frequency of interaction was relatively low, and preceptors meetings occurred usually twice each year. The resource commitment was relatively symmetrical, with the college having the highest input into the program. The definitional reciprocity was low as was the resource exchange low on the one variable examined.

The data on the degree of integration revealed that no exchange of instructional staff occurred among the institutions involved in the program, and the students visit the hospitals only during their clinical training and not at all during their didactic training. The speed of communication between N.A.I.T. and the hospitals was rated as "poor" and the relevancy of theoretical to practical knowledge was rated as only "fair". The overall cooperation among the institutions involved was perceived to be "fair" as well. The summary of integration comparisons between programs illustrated that the Health Records program scored consistently low in all items except one when compared to the other two programs.

The effectiveness measurement for the Health Records program showed a completion rate of 86%, which was higher than the R.N.A. program. However, the Health Records program had only 14 students during the 1982-83 school year, whereas the R.N.A. program had 212. The perception of the respondents to the item on program effectiveness rated that item "fair".

Conclusions

On the basis of the data examined in this study and the findings obtained, the following conclusions are presented:

1. The examination of the relationships that exist between the educational institutes and affiliating hospitals in a joint cooperation medical program are greatly facilitated by usage of the "linkage dimension approach."
2. None of the programs investigated had all of the individual characteristics required to support Andrews' (1978) five generalizations. Two of the three programs studied had at least two characteristics each that did lend support to the generalizations. One program had no relationship consistent with any of the generalizations.
3. The findings suggest that the relationships of two of the three programs are consistent with Andrews' (1978) five generalizations, and therefore the five generalizations seem to hold true for some programs other than Respiratory Technology.
4. In general, it would appear that the R.N.A. program is highly formalized, and perceived as being effective and well integrated.

5. In general, it would appear that the Medical X-ray program is less formalized, perceived to be effective and, to a lesser degree than the R.N.A. program, well integrated.

6. In general, it would appear that the Health Records program is very informal, perceived to have a "fair" degree of effectiveness, and was perceived to be less well integrated than either of the other two programs.

7. The measurement of effectiveness used in this study did not yield any significant information in terms of predicting a specific linkage dimension profile.

Implications

This study can derive a number of implications based on the findings and conclusions identified. These implications include:

1. The generalizations posited by Andrews (1978) were based on a study of one group of joint cooperative medical training programs, whereas this study examined three different types of medical training programs, which had different schedules of interaction between the educational institutes and the affiliating hospitals. In future studies, the symmetry of the schedules and the length of the programs could be important variables that might vary the perceptions of the respondents on the linkage dimension.

2. There is still a need to further refine the method of analysis of linkage dimensions in that some of the measures

used in this study were not precise enough to identify clear directions or trends. An example of this may be the variable of formalization, where the use of the analysis of formal contracts resulted in two of the three programs being labelled as "informal." However, the perceptions of the program constituents as indicated during the interviews would suggest that their perceptions of these programs is that they are highly formalized.

3. The construct of effectiveness is difficult to measure, as noted by Steers (1975) and Mutema (1981). The findings of Andrews (1978) and Mutema (1981) clearly indicate that an analysis of effectiveness is difficult to formulate and meaningfully relate to a given pattern of linkage dimensions.

Suggestions for Further Research

The major purpose of this study was to test Andrews' (1978) five generalizations to see if they hold true for allied health programs other than Respiratory Technology. The findings of this study revealed that there is evidence to support Andrews' generalizations in two of the three programs studied. However, it is recommended that a study might be conducted in other allied health professions more similar to the original programs studied by Andrews (1978) to see if the generalizations hold true. Also, it is recommended that a study be conducted to develop a more refined method of analysis of relational properties. As well, it is recommended that a multiple criterion approach be developed to facilitate the assessment of program effectiveness, such as the checklist of effectiveness variables cited by Ratsoy (1983).

Clearly, as more independent organizations enter into relationships with other similar organizations, the complexity of the relational variables is such that more research will be needed to clarify the relational dynamics of these unions.

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APPENDIX A

INTERVIEW GUIDE

INTERVIEW GUIDE

Name:

Affiliation:

Date of Interview:

1. Who is in charge of the overall program?

2. a. What is the official sanction for the development and continuance of the program? (Does a formal contract or agreement exist between the college and hospital?)

   b. To what degree were the terms of the contract mutually agreed upon?

3. Is there a formal coordinator of the total program to ensure adequate integration between the segments of the program? If not, how is coordination achieved?

4. a. Do specific written procedures or committee terms of reference exist that clearly delineate program responsibility and interrelation mechanisms?

   b. To what degree were the above procedures or terms of reference mutually agreed upon between the hospital and the college?

5. a. Are coordination procedures or the job description of the formal coordinator clear and explicit?

   b. To what degree was the job description of the formal coordinator mutually agreed upon?

6. Do you have a specific budget category for expenditures required by the relationship between the college and hospital?

7. Due to participation in the joint cooperative program, how much additional equipment do you purchase for educational purposes required by the program?

8. a. How frequently does the program advisory committee meet?

   b. What is the composition of the committee membership?

   c. To what degree were the terms of reference mutually agreed upon?

9. a. How frequently does the program liaison committee meet?

   b. What is the composition of the committee membership?

   c. To what degree were the terms of reference mutually agreed upon?

10. a. Who is responsible for student selection?

    b. Do specific procedures exist for student selection?

    c. To what degree were the procedures mutually agreed upon?

11. Do your students write a provincial or national certification examination?

12. How successful have your students been with the provincial or national registration examination?

13. Have there been any major changes in the program over the past three years?

14. What are the problems of the joint cooperative program? (if any)

15. What changes would you make to the existing program is you were given that opportunity?

16. Do you have any additional comments on the college/ hospital relationship?

17. What are the procedures to access completion rates for your students?

APPENDIX B

QUESTIONNAIRE

This questionnaire is designed to identify the degree of integration between the college and hospital components of the program in order to examine interorganizational relationships in joint cooperative programs.

Your responses are regarded as confidential and will only be used for statistical purposes. They will not be released in any way that will allow them to be identified with you.

The only way in which this form will be deliberately coded is by the group which constitutes your primary association with the program (e.g., student, faculty, college or hospital).

PART 1 - FACULTY DATA

1. Institution ____

2. Your job title is: (please select the choice closest to your actual title)

   a. Hospital instructor........................______
   b. College instructor.........................______
   c. College Program Director or Department Head.______
   d. Hospital Director or Department Head........______
   e. Supervisor..................................______

In completing the following questions regarding work experience please respond in terms of the nearest number of whole years worked.

3. Number of years in your present job:

   1 year ______
   2 years ______
   3 years ______
   4 years ______
   5 years ______
   6 years ______
   7 years ______
   8 years ______
   9 years or more ______

4. Number of years total work experience as a graduate in your profession.

   1 years ______
   2 years ______
   3 years ______
   4 years ______
   5 years ______
   6 years ______
   7 years ______
   8 years ______
   9 years or more ______

5. Your highest level of education attained is:

   a. College or Technical School: No. of years ________

   b. University: No. of years ____ Degrees held ________

   c. Other, please specify ______________________________

PART 2 - PROGRAM INTEGRATION

Instructions:

The first year of the joint cooperative program is designed to provide the student with an adequate theoretical knowledge, which is then reinforced by the provision of planned clinical experiences and further theory during the clinical program. This questionnaire is designed to evaluate the degree of integration between the theoretical and clinical years of the program. Based on your perception of the current program, please respond to each statement as accurately as possible, and circle only one response per question.

1. In the preparation of final hospital examinations, assistance is received from the college instructors:

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

2. In the preparation of the final college examinations, assistance is received from the hospital instructors:

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

3. In the determination of the course content for the hospital portion of the program, input is received from the college instructors:

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

4. In the determination of the course content for the college portion of the program, input is received from the hospital instructors:

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

5. How frequently is equipment provided by the college for the hospital components of the program?

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

6. How frequently is equipment provided by the hospital for the college components of the program?

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

7. In general, how often do college instructors actively teach in the hospital portion of the program?

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

8. In general, how often do hospital instructors actively teach in the college portion of the program?

Never	Rarely	Sometimes	Often	Frequently
1	2	3	4	5

9. How frequently do hospital instructors participate in inservice programs or professional development activities at the college?

Never	1 or 2 times/year	3-4 times/year	5-6 times/year	7 or more times/year
1	2	3	4	5

10. The college program head and the hospital student coordinator (instructor) communicate (other than at committee meetings);

Never	1 or 2 times/year	3-4 times/year	5-6 times/year	7 or more times/year
1	2	3	4	5

11. College/hospital instructional staff communicate (other than at committee meetings):

Never	1 or 2 times/year	2-3 times/year	5-6 times/year	7 or more times/year
1	2	3	4	5

12. How frequently do college instructors visit the hospital on a regular basis for the purpose of gaining clinical experience?

Never	1 or 2 times/year	3-4 times/year	5-6 times/year	7 or more times/year
1	2	3	4	5

13. In general, how well does the theoretical knowledge presented in the college program relate to the practical application of that knowledge during the clinical portion? Relationship is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

14. To what extent are the laboratory procedures as taught during the theoretical year relevant to the practical procedures of the clinical year? Relevancy is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

15. In general, how often are hospital visits held during the theoretical portion of the program?

Never	1 or 2 times/year	3-4 times/year	5-6 times/year	7 or more times/year
1	2	3	4	5

16. During the theoretical portion of the program, how adequate are the planned hospital visists in reinforcing the theoretical learnings of the student? Adequacy is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

17. How often are classes held at the college during the clinical portion for students of participating hospitals?

Never	1 or 2 times/year	3-4 times/year	5-6 times/year	7 or more times/year
1	2	3	4	5

18. How much consultation is there between the college and hospital staff in the selection of students for the program? Consultation occurs:

Never	1 or 2 times/year	3-4 times/year	5-6 times/year	7 or more times/year
1	2	3	4	5

19. How effective is the present college/hospital relationship in permitting maximum utilization of available resources (people, time, money, etc.) from the various participants of the program? Effectiveness is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

20. How adequate are the lines of communication between the college and hospital in assisting the overall program to keep current with the latest developments? Adequacy is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

21. When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college)? Speed of communication from the college to the hospital is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

22. When changes are made to the routines, procedures or equipment in one part of the program (college or hospital) how quickly are these changes communicated to participants in the other part of the program (hospital or college)? Speed of communication from the hospital to the college is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

23. From time to time, program related problems arise which require some kind of joint-problem solving activity. How adequate is the relationship between the college and hospital in coping with program related problems as they arise? Adequacy is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

24. In general, how would you rate the integration of the hospital and college components of the program? Integration is:

Very Poor	Poor	Fair	Good	Excellent
1	2	3	4	5

25. To what degree are the students considered as part of the day-to-day work force of the hospital department? For the department to function adequately students work output is:

Essential	Important	Useful	Of Limited Importance	Not Required
1	2	3	4	5

THANK YOU FOR YOUR KIND ASSISTANCE

IN PARTICIPATING IN THIS STUDY

If you have any comments you would like to make about the college/hospital relationship, please do so on this page.

APPENDIX C

DATA ANALYSIS TECHNIQUE
FOR INTERVIEW INFORMATION

APPENDIX C

DATA ANALYSIS TECHNIQUE FOR INTERVIEW INFORMATION

In order to analyze the data gathered by interview the following methodology was used.

Formalization

a) Formal agreements:

Question: What is the official sanction for the development and continuance of the program? Does any formal agreement or contract exist between the institute and the hospital?

Responses were coded as follows:

5. Government legislation or ministerial agreement
4. Written contract between organizations
3. Written agreement through the advisory committee
2. Written agreement through the college/faculty committee
1. Informal, tacit relationship between organizations

b) Coordination:

Question: Is there a formal coordinator of the program to ensure adequate integration between the segments of the program? If not, how is coordination achieved?

Responses were coded as follows:

Coordination is the responsibility of:

5. A formal coordinator of the total program who has no other responsibilities
4. A named coordinator who has other responsibilities
3. A special coordinating committee
2. The clinical liaison committee
1. No specific person, informal liaison between college/hospital faculty

C c) Procedural standardization:

Question: Do specific written procedures or committee terms of reference exist that clearly delineate program responsibility and interrelation mechanisms?

Responses were coded as follows:

Program responsibility and interrelation mechanisms were:

5. Very clearly written
4. Clearly written
3. Generally understood
2. Poorly written
1. Very vague, unavailable, or non-existent

If a formal or named coordinator did exist, then the following questions was asked:

Question: Are coordination procedures or the job description of the formal coordinator clear and explicit?

Responses were coded as follows:

5. Very clearly written
4. Clearly written
3. Generally understood
2. Poorly written
1. Very vague, unavailable, or non-existent

Intensity

a) Frequency of interaction:

Question: How often are scheduled liaison committee meetings held?

Responses were coded as follows:

5. 7 or more times a year
4. 5-6 times a year
3. 3-4 times a year
2. 1 or 2 times a year
1. Never

Question: How often are scheduled advisory committee meetings held?

Responses were coded as follows:

5. 7 or more times a year
4. 5-6 times a year
3. 3-4 times a year
2. 1 or 2 times a year
1. Never

b) Relative resource commitment:

Question: Do you have a specific budget for expenditures incurred due to your involvement in the joint cooperative program between the college and hospital? Such expenditures could include such items as salaries, travel, meeting expenses, secretarial fees, or other related educational expense. If no budget exists how are these expenses met?

Responses were coded as follows:

5. Specific budget exists
4. Money is available from general program funds
3. Money is available from departmental sources
2. Money is very difficult to obtain for such purposes
1. No money is available for such expenses

Question: (Hospital clinical coordinators only) Due to participation in the joint cooperative program, how much additional equipment is purchased for educational purposes?

Responses were coded as follows:

5. High commitment--deliberately purchases increased number and variety of equipment for educational purposes
4. Good commitment--deliberately purchases a variety of equipment for educational purposes

3. Moderate commitment--is cognizant of student needs when purchasing equipment and expends some funds for educational purposes
2. Low commitment--limited funds available for educational purposes
1. Do not have any funds available for educational purposes

Question: To what extent do your instructional staff lecture or instruct on a regular or systematic basis at the institute or college?

Responses were coded as follows:

5. Frequently
4. Often
3. Sometimes
2. Rarely
1. Never

Reciprocity

a) Resource reciprocity:

Question: To what extent do the participating institutions (college/hospital) share or exchange personnel, equipment, or educational aids with each other for educational purposes on a regular basis?

Responses were coded as follows:

5. Frequently
4. Often
3. Sometimes
2. Rarely
1. Never

b) Definitional reciprocity:

Question: To what degree were the terms of reference for the program advisory committee and liaison committee mutually agreed upon between the participating institutions?

Responses were coded as follows:

5. Mutual agreement among participating institutions
4. Close agreement among participating institutions
3. Some agreement among participating institutions
2. Little agreement among participating institutions
1. Unilateral decision by one institution

If a formal contract existed then the following question was asked:

Question: To what extent were the terms of the contract mutually agreed upon?

Responses were coded as follows:

5. Mutual agreement among participating institutions
4. Close agreement among participating institutions
3. Some agreement among participating institutions
2. Little agreement among participating institutions
1. Unilateral decision by one institution

If a formal coordinator existed with a specific job description the following question was asked:

Question: To what extent was the job description of the formal coordinator mutually agreed upon?

Responses were coded as follows:

5. Mutual agreement among participating institutions
4. Close agreement among participating institutions
3. Some agreement among participating institutions
2. Little agreement among participating institutions
1. Unilateral decision by one institution

Question: To what extent was the job description for the program coordinator mutually agreed upon?

Responses were coded as follows:

5. Mutual agreement among participating institutions
4. Close agreement among participating institutions
3. Some agreement among participating institutions
2. Little agreement among participating institutions
1. Unilateral decision by one institution

APPENDIX D

April 14, 1983

Mr. James Dunne
Program Head
Registered Nursing Assistant Program
Alberta Vocational Centre
10215 - 108 Street
Edmonton, Alberta
T5J 1L6

Dear Sir:

As mentioned in our recent telephone conversation, I am writing you to formally request your permission to engage in a research project involving your progam.

I am presently a graduate student in the Department of Education Administration at the University of Alberta and as part of the requirement for a Master's Degree I have prepared a proposal to examine a number of allied health joint cooperative programs, one of which is your program. The purpose of this study is to analyze the interorganizational linkages between the college and the hospital components of the programs, and analyze the findings based on a doctoral study done by Dr. M.B. Andrews in 1978.

The methodology of the study would involve three types of information gathering:

1. A questionnaire to be distributed to the teaching staff within your program. The responses to this questionniare would take approximately 1/2 hour to complete, and would be held in strict confidence by the researcher.

2. An interview by the researcher with the college program directors and the hospital department directors. This interview would be approximately 30-45 minutes duration.

3. With appropriate permission granted, access by the researcher to information on student intake and graduation statistics.

I trust that this information is of value to you, and I would be pleased to answer any questions you may have regarding this study.

In order to proceed with the study at this point, I will telephone you to confirm your involvement in this research proposal, and at that time would hope to schedule an appointment with you at your convenience.

Thank you for your consideration of this matter.

Nelson J. Kennedy